SONY

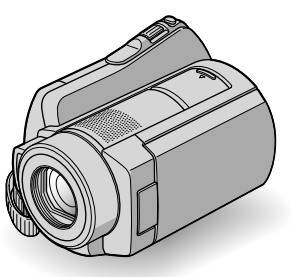
3-287-845-**11**(1)

Digital Video Camera Recorder

HANDYCAM

Handycam Handbook

DCR-SR220



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MEMORY STICK ™ InfoLITHIUM ™ H SERIES

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Read this before operating your camcorder

Before operating the unit, please read this Handbook thoroughly, and retain it for future reference.

Notes on use

In "Handycam Handbook" (this Handbook)

The operations and handling of your camcorder are explained. Refer also to "Operating Guide" (the separate volume).

Handling the images recorded on your camcorder on the computer

Refer to "PMB Guide" stored on the supplied CD-ROM.

Types of "Memory Stick" you can use with your camcorder

- For recording movies, it is recommended that you use a "Memory Stick PRO Duo" of 512 MB or larger marked with:
  - – MEMORY STICK PRO DUO ("Memory Stick PRO Duo")*
  - – MEMORY STICK PRO-HG DUO ("Memory Stick PRO-HG Duo")

* Marked with Mark2 or not, either can be used.

- See page 58 for the recordable time of a "Memory Stick PRO Duo."

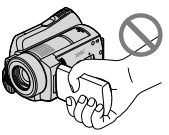
"Memory Stick PRO Duo"/"Memory Stick PRO-HG Duo"
(This size can be used with your camcorder.)

"Memory Stick"
(You cannot use it in your camcorder.)

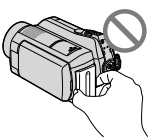
- "Memory Stick PRO Duo" and "Memory Stick PRO-HG Duo" are both referred to as "Memory Stick PRO Duo" in this manual.
- You cannot use any type of memory card other than those mentioned above.
- "Memory Stick PRO Duo" can be used only with "Memory Stick PRO" compatible equipment.
- Do not attach a label or the like on a "Memory Stick PRO Duo" or a Memory Stick Duo adaptor.
- Insert the "Memory Stick PRO Duo" into the Memory Stick Duo adaptor when using a "Memory Stick PRO Duo" with "Memory Stick" compatible equipment.

On using the camcorder

- Do not hold the camcorder by the following parts, and also do not hold the camcorder by the jack covers.



LCD screen



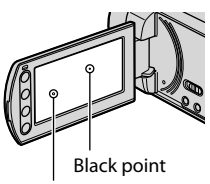
Battery pack

- The camcorder is not dustproofed, dripproofed or waterproofed. See "About handling of your camcorder" (p. 95).
- Do not do any of the following when the (Movie)/(Still) mode lamp (p. 17) or the ACCESS lamp (p. 25) is lit or flashing. Otherwise, the media may be damaged, recorded images may be lost or other malfunctions could occur.
  - – Remove the "Memory Stick PRO Duo."
  - – Remove the battery pack or AC Adaptor from the camcorder.
  - – Apply mechanical shock or vibration to the camcorder.
- When connecting your camcorder to another device with a cable, be sure to insert the connector plug in the correct way. Pushing the plug forcibly into the terminal will damage the terminal and may result in a malfunction of your camcorder.
- Disconnect the AC Adaptor from the Handycam Station holding both the Handycam Station and the DC plug.
- Be sure to turn the POWER switch to OFF (CHG), when you set the camcorder onto the Handycam Station or remove the camcorder from it.

- Connect cables to the connectors of the Handycam Station when using your camcorder attached to the Handycam Station. Do not connect the cables to both the Handycam Station and your camcorder.

About menu items, LCD panel and lens

- A menu item that is grayed out is not available under the current recording or playback conditions.
- The LCD screen is manufactured using extremely high-precision technology, so over 99.99% of the pixels are effective. However, there may be some tiny black points and/or bright points (white, red, blue, or green in color) that appear constantly on the LCD screen. These points are normal results of the manufacturing process and do not affect the recording in any way.



- Exposing the LCD screen or the lens to direct sunlight for long periods of time may cause malfunctions.
- Do not aim at the sun. Doing so might cause your camcorder to malfunction. Take images of the sun only in low light conditions, such as at dusk.

On recording

- Before starting to record, test the recording function to make sure the image and sound are recorded without any problems.
- Compensation for the contents of recordings cannot be provided, even if recording or playback is not possible due to a malfunction of the camcorder, recording media, etc.
- TV color systems differ depending on the countries/regions. To view your recordings on a TV, you need an NTSC system-based TV.
- Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the copyright laws.

About changing the language setting

The on-screen displays in each local language are used for illustrating the operating procedures. Change the screen language before using your camcorder if necessary (p. 18).

About this Handbook

- The LCD screens and indicators shown in this Handbook were taken with a digital still camera, and may look different from what you actually see.
- Design and specifications of media and other accessories are subject to change without notice.
- In this Handbook, the hard disk of your camcorder and "Memory Stick PRO Duo" are called "media."

About the Carl Zeiss lens

Your camcorder is equipped with a Carl Zeiss lens, which was developed jointly by Carl Zeiss in Germany, and Sony Corporation, and produces superior images. It adopts the MTF measurement system for video cameras and offers a quality typical of a Carl Zeiss lens.
Also, the lens for your camcorder is T∗ -coated to suppress unwanted reflections, then faithfully reproduce colors.

MTF = Modulation Transfer Function. The number value indicates the amount of light from a subject coming into the lens.

Notes on using the Hard Disk Drive Handycam

Save all your recorded image data

- To prevent your image data from being lost, save all your recorded images on external media periodically. It is recommended that you save the image data on a disc such as a DVD-R using your computer (p. 37). Also, you can save your image data using a VCR, or a DVD/HDD recorder (p. 47).

Do not apply shock or vibration to your camcorder

- The hard disk of the camcorder may not be recognized, or recording or playback may not be possible.
- Especially, during recording/playback, do not apply shock. After recording, do not apply vibration or shock to the camcorder, while the ACCESS lamp is lit.
- When using a shoulder belt (not supplied), do not crash the camera against an object.
- Do not use this camcorder in very loud areas. The hard disk of the camcorder may not be recognized, or recording or playback may not be possible.

On the drop sensor

- To protect the internal hard disk from shock by dropping, the camcorder has a drop sensor function (p. 69). When a drop occurs, or under a non-gravity condition, the block noise made when this function is activated by the camcorder may also be recorded. If the drop sensor catches a drop repeatedly, recording/playback may be stopped.

Notes on battery pack/AC Adaptor

- Be sure to remove the battery pack or the AC Adaptor after turning off the POWER switch.

Note on operating temperatures

- When the temperature of the camcorder becomes extremely high or extremely low, you may not be able to record or play back on the camcorder, due to the protection features of the camcorder being activated in such situations. In this case, a message appears on the LCD screen (p. 86).

When the camcorder is connected to a computer

- Do not try to format the hard disk of the camcorder using a computer. If you do so, your camcorder may not operate correctly.

Note on using the camcorder at high altitudes

- Do not turn on the camcorder in a low-pressure area, where the altitude is more than 3,000 meters (9,800 feet). Doing so may damage the hard disk drive of your camcorder.

Note on disposal/transfer

- If you perform [MEDIA FORMAT] (p. 53) to format the hard disk of the camcorder, data may not be completely deleted from the hard disk. When you transfer the camcorder, it is recommended that you perform [⛁EMPTY] (p. 54) to prevent the recovery of your data. In addition to the above, when you dispose of the camcorder, it is recommended that you destroy the actual body of the camcorder.

If you cannot record/play back images, perform [MEDIA FORMAT]

- If you repeat recording/deleting images for a long time, fragmentation of data occurs on the media. Images cannot be saved or recorded. In such a case, save your images on some type of external media first (p. 37), and then perform [MEDIA FORMAT] (p. 53).
  Fragmentation ☞ Glossary (p. 107)

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Operation flow

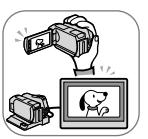
You can select the media (hard disk or "Memory Stick PRO Duo") separately for movie recording and still image recording (p. 20).
The media you set is effective for recording/playback/editing operations.

▶ Get ready (p. 12).

■ **Selecting the media (p. 20)**

▶ Shoot using your camcorder (p. 25).

▶ Play back the images.



■ **Viewing on the LCD screen of your camcorder (p. 30)**

■ **Viewing on the TV connected to your camcorder (p. 35)**

▶ Save recorded images.

■ **Dubbing/copying images from the hard disk to a "Memory Stick PRO Duo" (p. 42)**

■ **Saving images on a DVD using a computer (p. 37)**

■ **Importing images to a computer (p. 37)**

■ **Dubbing to other devices (p. 47)**

▶ Delete images.

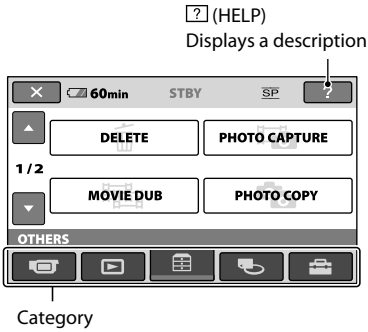
If the media of your camcorder is full, you cannot record new images. Delete the image data that has been saved on your computer or a disc. If you delete the images, you can record new images on the free media space again.

■ **Deleting the selected images (p. 38)**

■ **Deleting all the images ([MEDIA FORMAT], p. 53)**

"HOME" and "OPTION" - Taking advantage of two types of menus

"HOME MENU" - the starting point for operations with your camcorder



▶ Categories and items of the HOME MENU

(CAMERA) category

Item	Page
MOVIE*	22
PHOTO*	22
SMTH SLW REC	29

(VIEW IMAGES) category

Item	Page
VISUAL INDEX*	30
INDEX*	32
INDEX*	32
PLAYLIST	45

(OTHERS) category

Item	Page
DELETE*	38
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(MANAGE MEDIA) category

Item	Page
MOVIE MEDIA SET*	20
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REPAIR IMG.DB F.	55

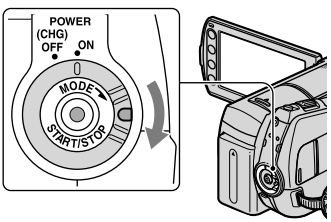
(SETTINGS) category

To customize your camcorder (p. 56)*.
For the items available in the (SETTINGS) category, see page 57.

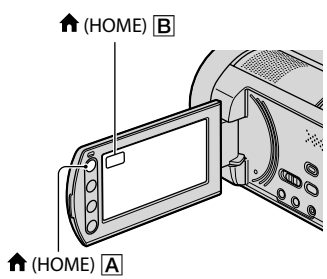
* You can also set these items during Easy Handycam operation (p. 22).

Using the HOME MENU

1 While pressing the green button, turn the POWER switch in the direction of the arrow to turn on the power.

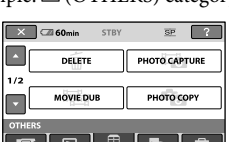


2 Press (HOME) A (or B).



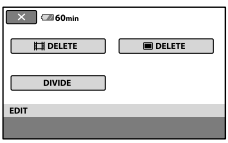
3 Touch the desired category.

Example: (OTHERS) category



4 Touch the desired item.

Example: [EDIT]



5 Follow the guide on the screen for further operation.

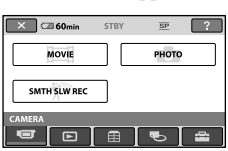
To hide the HOME MENU screen

Touch X.

▶ When you want to know something about the function of each item on the HOME MENU - HELP

1 Press (HOME).

The HOME MENU appears.



2 Touch ? (HELP).

The bottom of the ? (HELP) button turns orange.

3 Touch the item you want to learn more about.

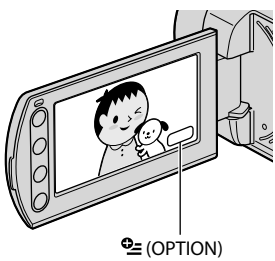
When you touch an item, its explanation appears on the screen. To apply the option, touch [YES], otherwise, touch [NO].

To deactivate the HELP

Touch [?] (HELP) again in step **2**.

Using the OPTION MENU

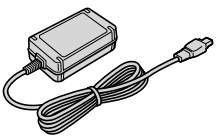
Just a touch on the screen during shooting or playback displays the functions available at that moment. You will find it easy to make various settings. See page 71 for further details.



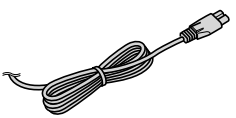
Step 1: Checking supplied items

Make sure that you have the following items supplied with your camcorder. The number in the parentheses indicates the number of that item supplied.

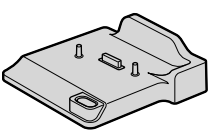
AC Adaptor (1) (p. 13)



Power cord (Mains lead) (1) (p. 13)

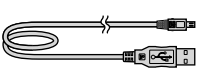


Handycam Station (1) (p. 13)



A/V connecting cable (1) (p. 35, 47)

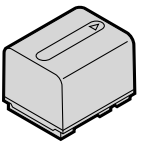
USB cable (1) (p. 50)



Wireless Remote Commander (1) (p. 103)

A button-type lithium battery is already installed.

Rechargeable battery pack NP-FH60 (1) (p. 13, 94)

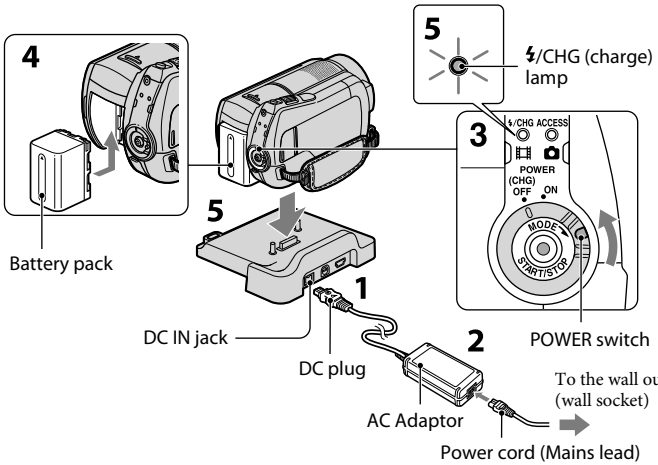


CD-ROM “Handycam Application Software” (1)

- Picture Motion Browser (Software)
- PMB Guide
- Handycam Handbook (This Handbook)

“Operating Guide” (1)

Step 2: Charging the battery pack



You can charge the "InfoLITHIUM" battery pack (H series) (p. 94) after attaching it to your camcorder.

Notes

- Your camcorder operates only with an "InfoLITHIUM" battery pack (H series).

1 Connect the AC Adaptor to the DC IN jack on the Handycam Station.

Be sure that the ▲ mark on the DC plug is facing up.

2 Connect the power cord (mains lead) to the AC Adaptor and the wall outlet (wall socket).

3 Turn the POWER switch in the direction of the arrow to OFF (CHG) (the default setting).

4 Attach the battery pack by sliding it in the direction of the arrow until it clicks.

5 Set the camcorder onto the Handycam Station securely.

The /CHG (charge) lamp lights up and charging starts.
The /CHG (charge) lamp turns off when the battery pack is fully charged.

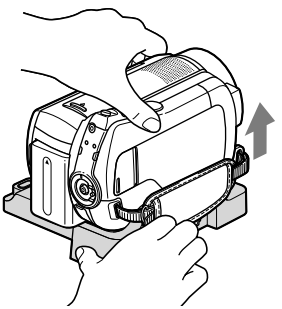
- When setting the camcorder onto the Handycam Station, close the DC IN jack cover.

Notes

- Disconnect the AC Adaptor from the DC IN jack holding both the Handycam Station and the DC plug.

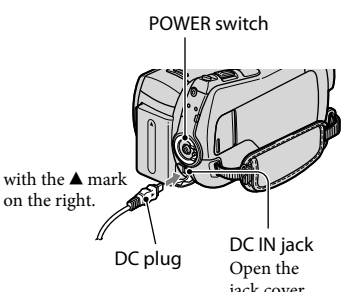
To remove your camcorder from the Handycam Station

Turn off the power, then remove the camcorder from the Handycam Station holding both your camcorder and the Handycam Station.



To charge the battery pack using only the AC Adaptor

Turn off the power, then connect the AC Adaptor to the DC IN jack on your camcorder.

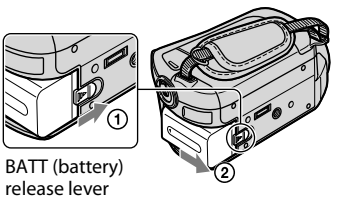


Notes

- Disconnect the AC Adaptor from the DC IN jack holding both the camcorder and the DC plug.

To remove the battery pack

Turn the POWER switch to OFF (CHG). Slide the BATT (battery) release lever and remove the battery pack.



Notes

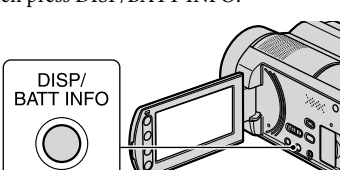
- When you remove the battery pack or disconnect the AC Adaptor, make sure that the (Movie) lamp/ (Still) lamp (p. 17)/ ACCESS lamps (p. 25) is turned off.
- When you store the battery pack, fully discharge the battery before storing it for an extended period (see page 95 for the details of storage).

To use a wall outlet (wall socket) for the power source

Make the same connections as you do when charging the battery pack. The battery pack will not lose its charge in this case.

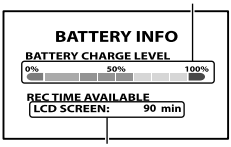
To check the remaining battery (Battery Info)

Set the POWER switch to OFF (CHG), then press DISP/BATT INFO.



After a while, the approximate recordable time and battery information appear for about 7 seconds. You can view the battery information for up to 20 seconds by pressing DISP/BATT INFO again while the information is displayed.

Remaining battery (approx.)



Recording capacity (approx.)

Charging time

Approximate time (min.) required when you fully charge a fully discharged battery pack.

Battery pack	Charging time
NP-FH50	135
NP-FH60 (supplied)	135
NP-FH70	170
NP-FH100	390

Recording time

Approximate time (min.) available when you use a fully charged battery pack.

Battery pack	Continuous recording time	Typical recording time*
NP-FH50	85 90	40 40
NP-FH60 (supplied)	115 120	50 60
NP-FH70	190 195	90 90
NP-FH100	430 440	210 220

- Top: When the media is set to the hard disk
  Bottom: When the media is set to the "Memory Stick PRO Duo"

* Typical recording time shows the time when you repeat recording start/stop, turning the power on/off and zooming.

Notes

- All times measured under the following settings:
  - Recording mode: [SP]
  - The LCD backlight turns on

Playback time

Approximate time (min.) available when you use a fully charged battery pack.

Battery pack	Playback time*
NP-FH50	120 125
NP-FH60 (supplied)	160 165
NP-FH70	255 270
NP-FH100	580 600

- Top: When the media is set to the hard disk
  Bottom: When the media is set to the "Memory Stick PRO Duo"

* When the LCD backlight is on.

On the battery pack

- Before changing the battery pack, turn the POWER switch to OFF (CHG) and turn off the (Movie) lamp/ (Still) lamp (p. 17)/ ACCESS lamp (p. 25).
- The /CHG (charge) lamp flashes during charging, or Battery Info (p. 14) will not be correctly displayed under the following conditions:
  - The battery pack is not attached correctly.
  - The battery pack is damaged.
  - The battery pack is worn-out (for Battery Info only).
- The power will not be supplied from the battery as long as the AC Adaptor is connected to the DC IN jack of your camcorder or the Handycam Station, even when the power cord (mains lead) is disconnected from the wall outlet (wall socket).
- When attaching an optional video light, it is recommended that you use an NP-FH70/FH100 battery pack.

- We do not recommend using an NP-FH30, which only allows short recording and playback times, with your camcorder.

On the charging/recording/playback time

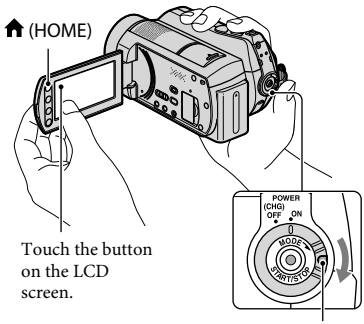
- Times measured when using the camcorder at 25°C (77 °F) (10°C to 30°C (50 °F to 86 °F) is recommended).
- The available recording and playback time will be shorter when you use your camcorder in low temperatures.
- The available recording and playback time will be shorter depending on the conditions under which you use your camcorder.

On the AC Adaptor

- Use the nearby wall outlet (wall socket) when using the AC Adaptor. Disconnect the AC Adaptor from the wall outlet (wall socket) immediately if any malfunction occurs while using your camcorder.
- Do not use the AC Adaptor placed in a narrow space, such as between a wall and furniture.
- Do not short-circuit the DC plug of the AC Adaptor or battery terminal with any metallic objects. This may cause a malfunction.
- Even if your camcorder is turned off, AC power source (mains) is still supplied to it while connected to the wall outlet (wall socket) via the AC Adaptor.

Step 3: Turning the power on, and setting the date and time

Set the date and time when using this camcorder for the first time. If you do not set the date and time, the [CLOCK SET] screen appears every time you turn on your camcorder or change the POWER switch position.



1 While pressing the green button, turn the POWER switch repeatedly in the direction of the arrow until the respective lamp lights up.

(Movie): To record movies
(Still): To record still images

Go to step **3** when you turn on your camcorder for the first time.

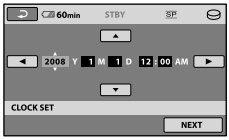
2 Touch (HOME) → (SETTINGS) → [CLOCK/ LANG] → [CLOCK SET].

The [CLOCK SET] screen appears.

3 Select the desired geographical area with / , then touch [NEXT].

4 Set [DST SET] or [SUMMERTIME], then touch [NEXT].

5 Set [Y] (year) with / .



6 Select [M] with / , then set the month with / .

7 Set [D] (day), hour and minute in the same way, then touch [NEXT].

8 Make sure that the clock is correctly set, then touch OK.

The clock starts.
You can set any year up to the year 2037.
For midnight, set it to 12:00 AM.
For midday, set it to 12:00 PM.

To turn off the power

Turn the POWER switch to OFF (CHG).

Notes

- If you do not use your camcorder for **about 3 months**, the built-in rechargeable battery gets discharged and the date and time settings may be cleared from the memory. In that case, charge the built-in rechargeable battery and then set the date and time again (p. 97).
- It takes a few seconds for your camcorder to be ready to shoot after the power is turned on. You cannot operate your camcorder during this time.
- The lens cover opens automatically when the power is turned on. It closes when the playback screen is selected, or the power is turned off.
- In the default setting, the power turns off automatically if you leave your camcorder unoperated for approximately 5 minutes, to save battery power ([A.SHUT OFF], p. 69).

Tips

- The date and time do not appear during recording, but they are automatically recorded on the media, and can be displayed during playback ([DATA CODE], p. 64).
- Refer to page 91 for information concerning "World time difference."
- If the buttons on the touch panel do not work correctly, adjust the touch panel [CALIBRATION] (p. 96).

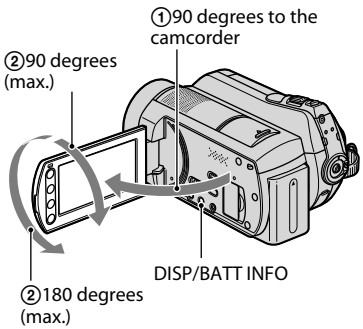
Changing the language setting

You can change the on-screen displays to show messages in a specified language. Touch (HOME) → (SETTINGS) → [CLOCK/LANG] → [LANGUAGE SET], then select the desired language.

Step 4: Making setting adjustments before recording

Adjusting the LCD panel

Open the LCD panel 90 degrees to the camcorder (①), then rotate it to the best angle to record or play (②).



To turn off the LCD backlight to make the battery last longer

Press and hold DISP/BATT INFO for a few seconds until DISP OFF appears.
This setting is practical when you use your camcorder in bright conditions or when you want to save battery power. The recorded image will not be affected by the setting. To turn on the LCD backlight, press and hold DISP/BATT INFO for a few seconds until DISP OFF disappears.

Notes

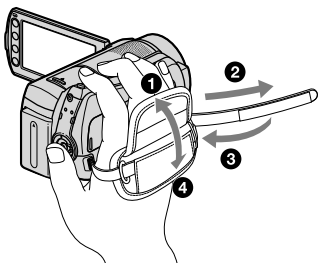
- Do not press the buttons on the LCD frame accidentally when you open or adjust the LCD panel.

Tips

- If you rotate the LCD panel 180 degrees, you can close the LCD panel with the LCD screen facing out. This is convenient during playback operations.
- Touch (HOME) → (SETTINGS) → [SOUND/DISP SET] → [LCD BRIGHT] (p. 66), and adjust the brightness of the LCD screen.
- The information is displayed or hidden (display ↔ no display) each time you press DISP/BATT INFO.

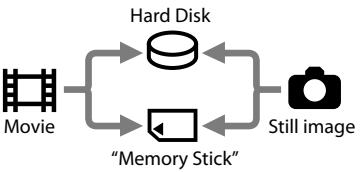
Fastening the grip belt

Fasten the grip belt and hold your camcorder correctly.



Step 5: Selecting the media

You can select the hard disk or "Memory Stick PRO Duo" as the recording/playback/editing media on your camcorder. Select the media for movies and still images separately.
The default setting is hard disk for movies and still images.



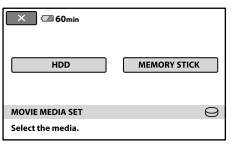
Notes

- You can do recording/playback/editing operations for the selected media only. When you want to change the media, reselect the media.
- The recordable time with [SP] recording mode (the default setting) is as follows (approx.):
  - The internal hard disk:
    21 hours 50 minutes
  - "Memory Stick PRO Duo" (4 GB) made by Sony Corporation:
    1 hour 20 minutes
- Check the number of recordable still images on the LCD screen of your camcorder (p. 105).

1 Touch (HOME) → (MANAGE MEDIA) on the screen.

2 Touch [MOVIE MEDIA SET] to select the media for movies, and touch [PHOTO MEDIA SET] to select the media for still images.

The media setting screen appears.



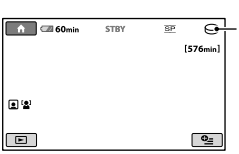
3 Select the media you want to set.

4 Touch [YES] → OK.

The media is changed.

To confirm the media setting

① Turn the POWER switch repeatedly to light up the (Movie) or (Still) lamp, depending on which media setting you want to check.
② Check the media icon on the screen.



Inserting the “Memory Stick PRO Duo”

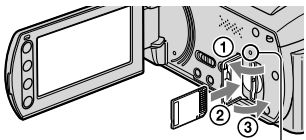
Prepare a “Memory Stick PRO Duo” if [MEMORY STICK] has been selected as the media.
For types of “Memory Stick” you can use in your camcorder, see page 2.

1 Insert the “Memory Stick PRO Duo.”

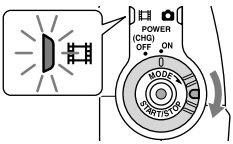
① Open the Memory Stick Duo cover in the direction of the arrow.

② Insert the “Memory Stick PRO Duo” into the Memory Stick Duo slot in the right direction until it clicks.

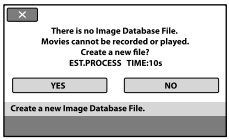
③ Close the Memory Stick Duo cover.



2 If you have selected [MEMORY STICK] as the movie media, turn the POWER switch until the 🎞 (Movie) lamp lights up.



The [Create a new Image Database File.] screen appears on the LCD screen when you insert a new “Memory Stick PRO Duo.”



3 Touch [YES].

To record only still images on a “Memory Stick PRO Duo,” touch [NO].

To remove the “Memory Stick PRO Duo”

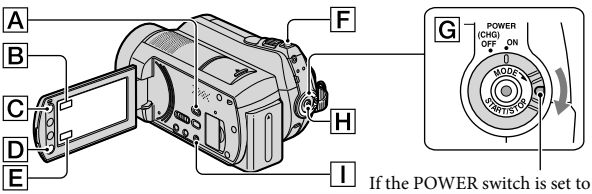
Open the Memory Stick Duo cover and lightly push the “Memory Stick PRO Duo.”

Notes

- Do not open the Memory Stick Duo cover while recording.
- Inserting a “Memory Stick PRO Duo” forcibly in the wrong direction may cause a malfunction to the “Memory Stick PRO Duo,” Memory Stick Duo slot or image data.
- If [Failed to create a new Image Database File. It may be possible that there is not enough free space.] appears in step **3**, format the “Memory Stick PRO Duo” (p. 53). All recorded data on the “Memory Stick PRO Duo” will be deleted when you format.
- Be careful not to allow the “Memory Stick PRO Duo” to pop out and fall when you push on and remove it.

Recording and playback with ease (Easy Handycam operation)

Easy Handycam operation makes nearly all settings automatic so that you can perform recording or playback operations without detailed settings. It also makes the screen font size larger for easy viewing. The images are recorded on the selected media (p. 20).



If the POWER switch is set to OFF (CHG), turn it while pressing the green button.

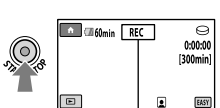
Recording movies

1 Turn the POWER switch G until the (Movie) lamp lights up.

2 Press EASY I.

EASY appears on the LCD screen.

3 Press START/STOP H (or D) to start recording.*



[STBY] ➡ [REC]

To stop recording, press START/STOP again.

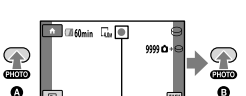
Recording still images

1 Turn the POWER switch G until the (Still) lamp lights up.

2 Press EASY I.

EASY appears on the LCD screen.

3 Press PHOTO F lightly to adjust the focus Ⓐ (a beep sounds), then press it fully Ⓑ (a shutter click sounds).



Flashing ➡ Lights up

* The setting of [REC MODE] is fixed to [SP] (p. 58).

Tips

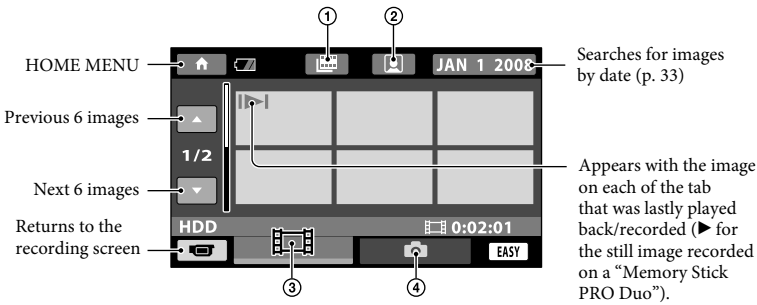
- During Easy Handycam operation, faces are detected with frames ([FACE DETECTION], p. 61).

Playing back recorded movies/still images

1 Turn the POWER switch G to turn on your camcorder.

2 Press ▶ (VIEW IMAGES) A (or E).

The [VISUAL INDEX] screen appears on the LCD screen. (It may take some seconds.)

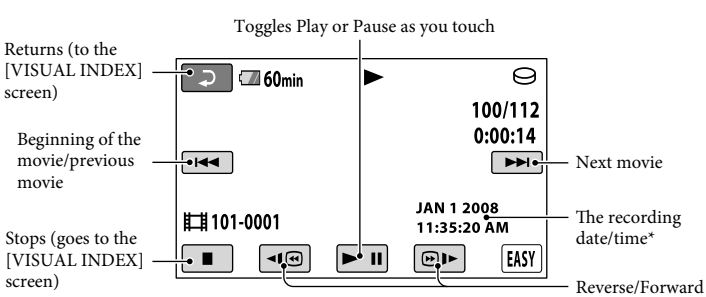


① : Film Roll Index (p. 32)
② : Face Index (p. 32)
③ : Displays movies.
④ : Displays still images.

3 Start playback.

Movies:

Touch the tab and the movie to be played back.



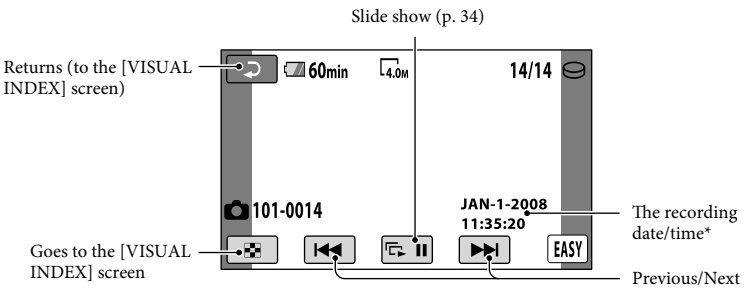
* The setting of [DATA CODE] is fixed to [DATE/TIME] (p. 64).

Tips

- When playback from the selected movie reaches the last movie, the screen returns to the [VISUAL INDEX] screen.
- You can slow down the playback speed by touching ⏪ / ⏩ during pause.
- You can adjust the volume by touching (HOME) → (SETTINGS) → [SOUND SETTINGS] → [VOLUME], then with − / +.

Still images:

Touch the tab and the still image to be played back.



* The setting of [DATA CODE] is fixed to [DATE/TIME] (p. 64).

To cancel Easy Handycam operation

Press EASY [I] again. EASY disappears from the LCD screen.

Menu settings during Easy Handycam operation

Press (HOME) [C] (or [B]) to display the menu items available for setup changes (p. 9, 57).

Notes

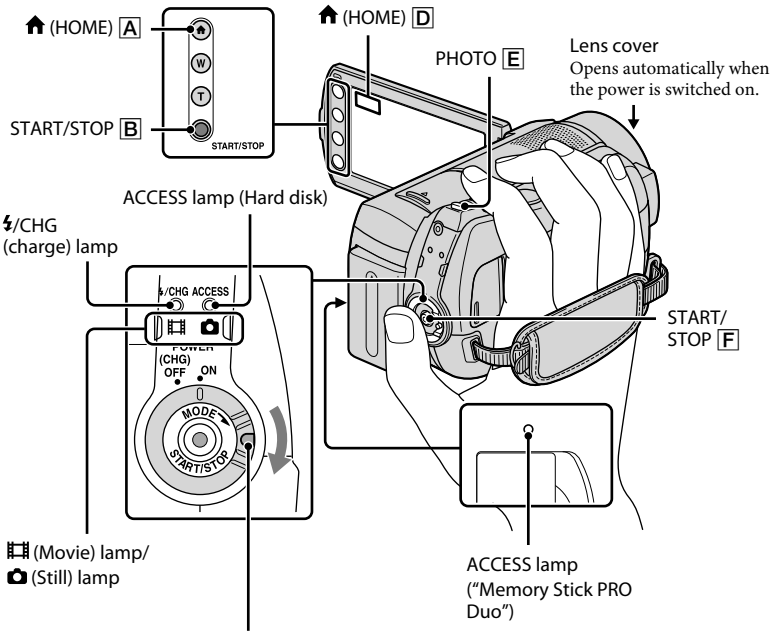
- Most of the menu items automatically return to the default settings. The settings of some menu items are fixed. For details, see page 78.
- You cannot use the (OPTION) menu.
- Cancel Easy Handycam operation if you want to add effects to images or change settings.

Invalid buttons during Easy Handycam operation

You cannot use some buttons/functions during Easy Handycam operation since they are automatically set (p. 78). If you set an invalid operation, [Invalid during Easy Handycam operation.] appears.

Recording

The images are recorded on the media selected on the media setting (p. 20).
The default setting is hard disk for both movies and still images.


(HOME) A
START/STOP B
(HOME) D
PHOTO E
Lens cover
Opens automatically when the power is switched on.
ACCESS lamp (Hard disk)
/CHG (charge) lamp
START/ STOP F
(Movie) lamp/ (Still) lamp
ACCESS lamp ("Memory Stick PRO Duo")
POWER switch C
If the POWER switch is set to OFF (CHG), turn it while pressing the green button.

Notes

- If the ACCESS lamp is lit or flashing after recording is finished, it means data is still being written onto the media. Do not apply shock or vibration to your camcorder, and do not remove the battery or AC Adaptor.
- The maximum continuous recordable time is approximately 13 hours.
- When a movie file exceeds 2 GB, the next movie file is created automatically.

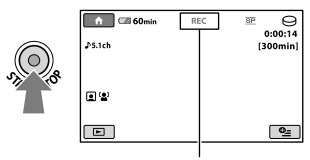
Tips

- You can check the recordable time and the remaining capacity, etc., by touching (HOME) → (MANAGE MEDIA) → [MEDIA INFO] (p. 52).
- For types of "Memory Stick" you can use in your camcorder, see page 2.

Recording movies

1 Turn the POWER switch C until the (Movie) lamp lights up.

2 Press START/STOP F (or B).



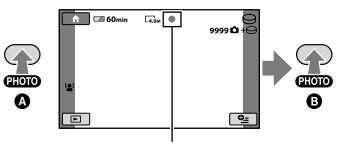
[STBY] ➔ [REC]

To stop recording, press START/STOP again.

Recording still images

1 Turn the POWER switch C until the (Still) lamp lights up.

2 Press PHOTO E lightly to adjust the focus A (a beep sounds), then press it fully B (a shutter click sounds).



Flashing ➔ Lights up

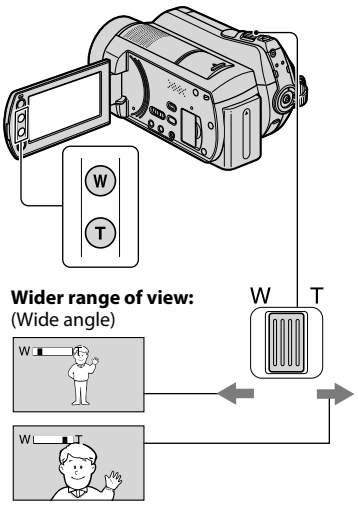
appears beside or . When disappears, the image has been recorded.

Tips

- For the recordable time and the number of recordable images, see pages 58 and 60.
- You can record still images by pressing PHOTO E during movie recording ([Dual Rec], (p. 28)).
- A frame is shown on the detected face, and the detected face image is optimized automatically ([FACE DETECTION], p. 61).
- When a face is detected during movie recording, flashes and the detected face is stored in the index. You can search for a desired scene by a face image when playing back ([Face Index], p. 61).
- You can switch the recording mode by touching (HOME) A (or D) (CAMERA) → [MOVIE] or [PHOTO].
- You can create still images from recorded movies (p. 41).

Zooming

You can magnify images up to 15 times the original size with the power zoom lever or the zoom buttons on the LCD frame.



Move the power zoom lever slightly for a slower zoom. Move it further for a faster zoom.

Notes

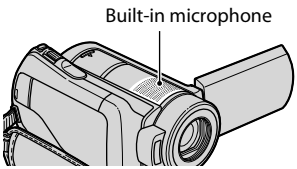
- Be sure to keep your finger on the power zoom lever. If you move your finger off the power zoom lever, the operation sound of the lever may also be recorded.
- You cannot change the zoom speed with the zoom buttons on the LCD frame.
- The minimum possible distance between camcorder and subject while maintaining sharp focus is about 1 cm (about 13/32 in.) for wide angle and about 80 cm (about 2 5/8 feet) for telephoto.

Tips

- You can set [DIGITAL ZOOM] (p. 59) if you want to zoom to a level greater than 15 × when recording movies.

Recording sound with more presence (5.1ch surround recording)

Dolby Digital 5.1ch surround sound can be recorded with the Built-in microphone. You can enjoy realistic sound when playing the movie on devices that support 5.1ch surround sound.



Dolby Digital 5.1 Creator, 5.1ch surround sound ☞ Glossary (p. 107)

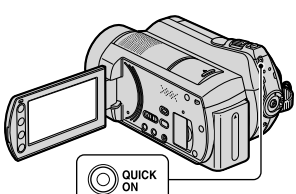
Notes

- If you play back 5.1ch sound on your camcorder, 5.1ch sound is automatically converted and output in 2ch.

Tips

- You can select the recording sound from [5.1ch SURROUND] (♪5.1ch) or [2ch STEREO] (♪2ch) ([AUDIO MODE], p. 58).

Starting shooting quickly (QUICK ON)



When you press QUICK ON, the camcorder goes to sleep mode (power saving mode) instead of turning off. The QUICK ON lamp keeps flashing during sleep mode. Press QUICK ON again to start recording in about 1 second when you start recording next time.

Tips

- During sleep mode, the battery is consumed at about half that of usual recording, enabling you to save battery power.
- The power turns off automatically if you do not operate your camcorder for a certain period during sleep mode. You can set the time that you want the camcorder to remain on before automatically turning off in sleep mode ([QUICK ON STBY], (p. 69)).

Recording high quality still images during movie recording (Dual Rec)

You can record high quality still images during movie recording by pressing PHOTO.

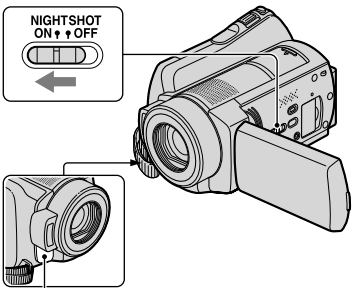
Notes

- You cannot use the flash during movie recording.
- may appear when the capacity of the recording media is not enough or when you record still images continuously. You cannot record still images while is displayed.

Tips

- When the POWER switch is set to (Movie), the size of still images becomes [3.0M] (16:9 wide) or [2.2M] (4:3).
- You can record still images during recording standby in the same way as when the (Still) lamp is turned on. You can also record with the flash.

Recording in dark places (NightShot)



When you set the NIGHTSHOT switch to ON, appears. You can record images in dark places.

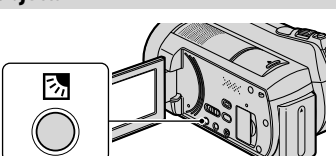
Notes

- The NightShot and Super NightShot functions use infrared light. Therefore, do not cover the infrared port with your fingers or other objects, and remove the conversion lens (optional).
- Adjust the focus manually ([FOCUS], p. 73) when it is hard to focus automatically.
- Do not use the NightShot and Super NightShot functions in bright places. This may cause a malfunction.

Tips

- To record an image brighter, use the Super NightShot function (p. 76). To record an image more faithfully to the original colors, use the Color Slow Shutter function (p. 76).

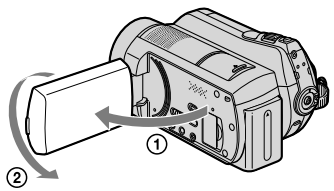
Adjusting the exposure for backlit subjects



To adjust the exposure for backlit subjects, press (back light) to display . To cancel

the back light function, press (back light) again.

Recording in mirror mode



Open the LCD panel 90 degrees to the camcorder (①), then rotate it 180 degrees to the lens side (②).

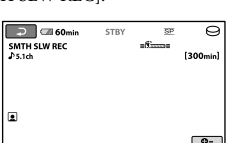
Tips

- A mirror-image of the subject appears on the LCD screen, but the image will be normal when recorded.

Recording fast action in slow-motion (SMTH SLW REC)

Fast moving subjects and actions, which cannot be captured under the ordinary shooting conditions, can be shot in smooth moving slow-motion for about 3 seconds. This is useful to shoot fast actions such as a golf or tennis swing.

① Touch (HOME) → (CAMERA) → [SMTH SLW REC].



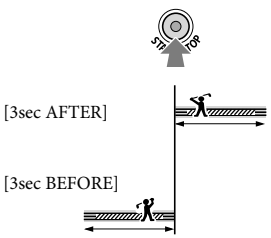
② Press START/STOP.
A 3-second movie (approx.) is recorded as a 12-second-slow-motion movie.
[Recording…] disappears, when recording is finished.

Touch to cancel the smooth slow recording.

To change the setting

Touch (OPTION) → tab, then select the setting you want to change.

- [TIMING]
  Select the recording start point after START/STOP is pressed. The default setting is [3sec AFTER].



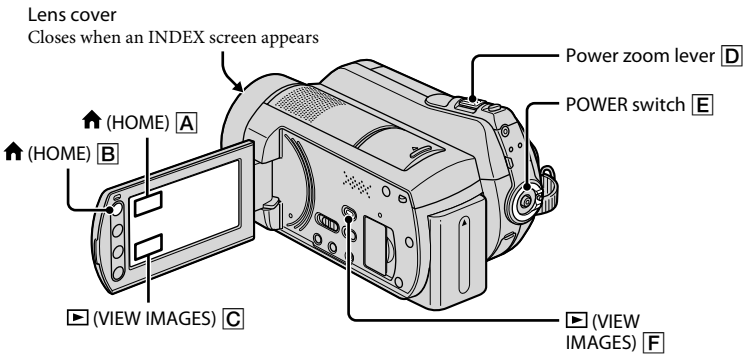
- [RECORD SOUND]
  Select [ON] () to superimpose sounds such as conversation on the slow motion pictures (The default setting is [OFF]). Your camcorder records sounds for about 12 seconds while [Recording…] is displayed in step ②.

Notes

- Sounds cannot be recorded while shooting a 3-second movie (approx.).
- Image quality of [SMTH SLW REC] is not as good as that of normal recording.
- During Easy Handycam operation, the [SMTH SLW REC] function cannot be used. Cancel Easy Handycam operation.

Playback

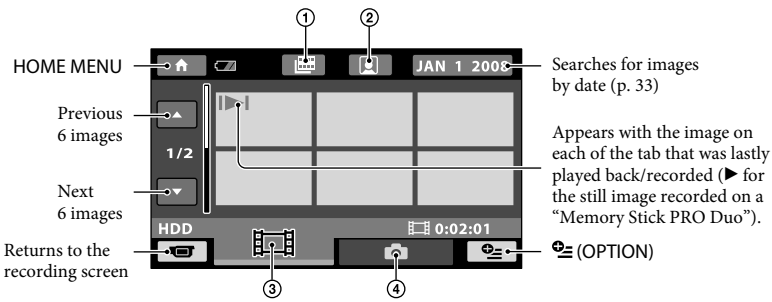
You can play back images recorded on the media selected in the media setting (p. 20).
The default setting is the hard disk.



1 Turn the POWER switch E to turn on your camcorder.

2 Press (VIEW IMAGES) F (or C).

The [VISUAL INDEX] screen appears on the LCD screen. (It may take some seconds.)



① : Film Roll Index (p. 32)
② : Face Index (p. 32)
③ : Displays movies.
④ : Displays still image.

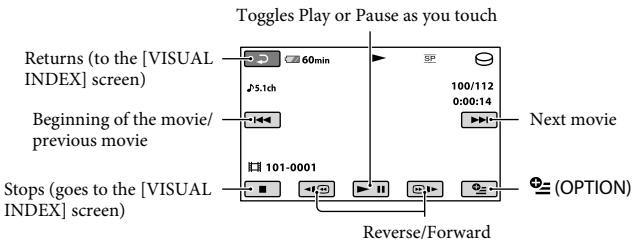
Tips

- The number of the images on the [VISUAL INDEX] screen can be changed 6 ⟷ 12 by moving the power zoom lever D. To fix this number, touch (HOME) → (SETTINGS) → [VIEW IMAGES SET] → [DISPLAY] (p. 65).

3 Start playback.

Playing movies

Touch the tab, and the movie to be played back.

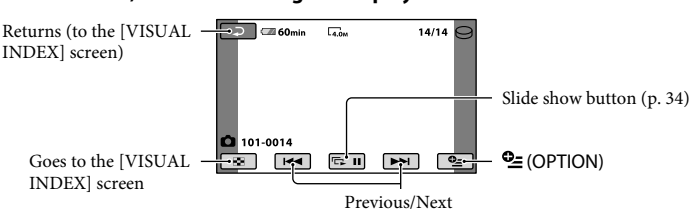


Tips

- When playback from the selected movie reaches the last movie, the screen returns to the [VISUAL INDEX] screen.
- Touch / during pause to play back a movie slowly.
- One touch of / makes the reverse/fast forward approximately 5 times faster, 2 touches makes it approximately 10 times faster, 3 touches makes it approximately 30 times faster, and 4 touches makes it approximately 60 times faster.

Viewing still images

Touch the tab, and the still image to be played back.



To adjust the volume of movies

Touch (OPTION) → tab → [VOLUME], then adjust the volume with /.

Tips

- You can switch the playback mode by touching (HOME) B (or A) → (VIEW IMAGES) → [VISUAL INDEX].

Searching for desired scene by pinpoint (Film Roll Index)

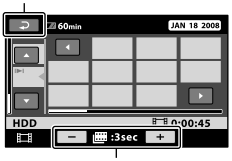
Movies can be divided by a set time and the first scene of each division is displayed on the INDEX screen. You can start playing back a movie from the selected thumbnail.
Select beforehand the media which contains the recorded movie you want to play back (p. 20).

1 Turn the POWER switch to turn on the camcorder, and press (VIEW IMAGES).

The [VISUAL INDEX] screen appears on the LCD screen.

2 Touch (Film Roll Index).

Returns to the [VISUAL INDEX] screen



Sets the interval at which to create thumbnails of scenes in a movie.

3 Touch / to select the desired movie.

4 Touch / , to search for the desired scene, then touch the scene you want to play back.

Playback starts from the selected scene.

Tips

- You can display the [Film Roll Index] screen by touching (HOME) → (VIEW IMAGES) → [INDEX].

Searching for desired scene by face (Face Index)

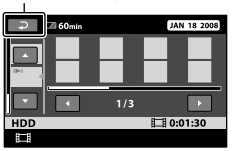
The detected face images during recording are displayed on the index screen.
You can play back the movie from the selected face image.
Select beforehand the media which contains the recorded movie you want to play back (p. 20).

1 Turn the POWER switch to turn on the camcorder, and press (VIEW IMAGES).

The [VISUAL INDEX] screen appears on the LCD screen.

2 Touch (Face Index).

Returns to the [VISUAL INDEX] screen



3 Touch / to select the desired movie.

4 Touch / , then touch the desired face image to view the scene.

Playback starts from the beginning of the scene with the selected face image.

Notes

- Faces may not be detected depending on recording conditions.
  Example: People wearing glasses or hats, or who do not face towards the camera.

• Set [INDEX SET] to [ON] (the default setting) before recording to play back from [INDEX] (p. 61). Make sure that flashes, and detected face images are stored in [Face Index].

Tips

• You can display the [Face Index] screen by touching (HOME) → (VIEW IMAGES) → [INDEX].

Searching for desired images by date (Date Index)

You can efficiently search for desired images by date.
Select beforehand the media which contains the recorded movie you want to play back (p. 20).

Notes

• You cannot use the date index for still images on the "Memory Stick PRO Duo."

1 Turn the POWER switch to turn on the camcorder, and press (VIEW IMAGES).

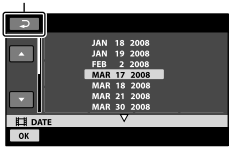
The [VISUAL INDEX] screen appears on the LCD screen.

2 To search for movies, touch the tab. To search for still images, touch the tab.

3 Touch the date button at the upper right of the LCD screen.

The recording dates of images are displayed on the screen.

Returns to the [VISUAL INDEX] screen



4 Touch / to select the date of the desired image, and touch OK.

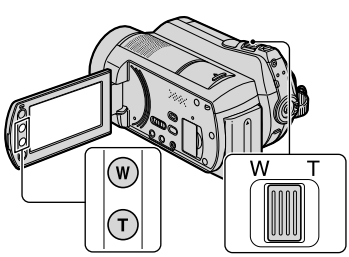
The images of the selected date are displayed on the [VISUAL INDEX] screen.

Tips

• On the [Film Roll Index] or [Face Index] screen, you can use the Date Index function by following the steps **3** to **4**.

Using PB zoom

You can magnify still images from about 1.1 to 5 times the original size. Magnification can be adjusted with the power zoom lever or the zoom buttons on the LCD frame.

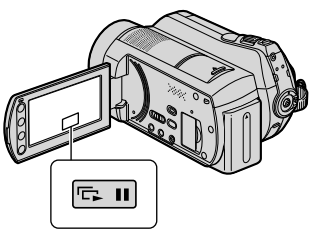


① Play back the still image you want to magnify.

② Magnify the still image with T (Telephoto). The screen is framed.
③ Touch the screen at the point you want to display in the center of the displayed frame.
④ Adjust the magnification with W (Wide angle)/T (Telephoto).

To cancel, touch .

Playing back a series of still images (Slide show)



Touch on the still image playback screen.
The slide show begins from the selected still image.
Touch to stop the slide show.
To restart, touch again.

Notes

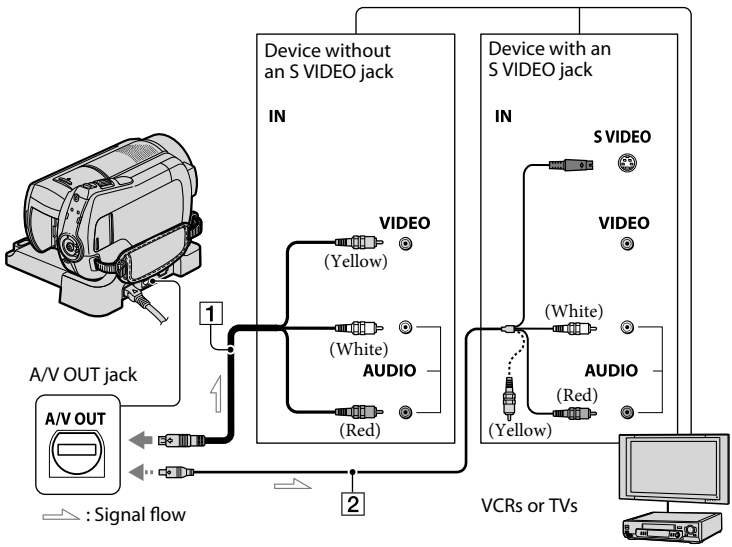
- You cannot operate playback zoom during slide show.

Tips

- You can set continuous slide show playback by selecting (OPTION) → tab → [SLIDE SHOW SET]. The default setting is [ON] (continuous playback).
- You can also play back the slide show by touching (OPTION) → tab → [SLIDE SHOW] on the [VISUAL INDEX] screen.

Playing the image on a TV

Connect your camcorder to the input jack of a TV or VCR using the A/V connecting cable 1 or an A/V connecting cable with S VIDEO 2. Connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 13). Refer also to the instruction manuals supplied with the devices to be connected.



1 A/V connecting cable (supplied)
The Handycam Station has an A/V OUT jack (p. 102) and the camcorder has an A/V Remote Connector (p. 99). Connect the A/V connecting cable either to the Handycam Station or to your camcorder, according to your setup.

2 A/V connecting cable with S VIDEO (optional)
When connecting to another device via the S VIDEO jack, by using an A/V connecting cable with an S VIDEO cable (optional), higher quality images can be produced than with an A/V connecting cable. Connect the white and red plugs (left/right audio) and the S VIDEO plug (S VIDEO channel) of the A/V connecting cable with an S VIDEO cable (optional). The yellow plug connection is not necessary. Connecting only the S VIDEO plug will not output audio.

Notes

- Do not connect A/V connecting cables to both your camcorder and the Handycam Station at the same time. The image might get disturbed.

Tips

- You can display the counter on the TV screen by setting [DISP OUTPUT] to [V-OUT/PANEL] (p. 67).

When your TV is connected to a VCR

Connect your camcorder to the LINE IN input on the VCR. Set the input selector on the VCR to LINE (VIDEO 1, VIDEO 2, etc.), if the VCR has an input selector.

To set the aspect ratio according to the connected TV (16:9/4:3)

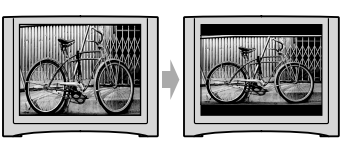
Change the setting according to the screen aspect ratio of the TV you will view images on.

① Turn the POWER switch to turn on the camcorder.
② Touch (HOME) → (SETTINGS) → [OUTPUT SETTINGS] → [TV TYPE] → [16:9] or [4:3] → [OK].

Notes

- When you connect your camcorder to a TV compatible with the ID-1/ID-2 system, set [TV TYPE] to [16:9]. The TV switches to full mode automatically. Refer also to the instruction manuals supplied with your TV.
- When you set [TV TYPE] to [4:3], the image quality may deteriorate. Also, when the recorded image's aspect ratio switches between 16:9 (wide) and 4:3, the image may jitter.
- On some 4:3 TVs, the still images recorded in 4:3 aspect ratio may not be displayed full screen. This is not a malfunction.

- When you play back an image recorded in 16:9 (wide) aspect ratio on a 4:3 TV not compatible with the 16:9 (wide) signal, set [TV TYPE] to [4:3].



When your TV is monaural (When your TV has only one audio input jack)

Connect the yellow plug of the A/V connecting cable to the video input jack and connect the white (left channel) or red (right channel) plug to the audio input jack of your TV or VCR.

Saving images

Due to the limited capacity of the media, make sure that you save the image data to some type of external media such as a DVD-R or a computer.
You can save the images recorded on the camcorder as described below.

Tips

- You can dub/copy the images recorded on the hard disk to the "Memory Stick PRO Duo" using this camcorder (p. 42).

Using a computer

By using "Picture Motion Browser" on the supplied CD-ROM, you can save images recorded on your camcorder. For details, see "PMB Guide."

Creating a DVD with One Touch (One Touch Disc Burn)

You can save images recorded on the hard disk of your camcorder directly to a DVD with ease by pressing (DISC BURN) button.

Saving images on a computer

You can save images recorded on the camcorder on the hard disk of a computer.

Creating a DVD with selected images

You can save images imported to your computer on a DVD. You can also edit those images.

Refer to the supplied "Operating Guide" for information on the bundled software.

Connecting your camcorder to other devices

Connecting with the A/V connecting cable

You can dub to VCRs, DVD/HDD recorders.

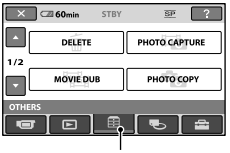
Connecting with the USB cable

You can dub to movie dubbing compatible DVD writers, etc.

See "Dubbing to other devices" on page 47.

(OTHERS) category

This category enables you to edit the images on the media. Also, you can enjoy your camcorder by connecting to other devices.



(OTHERS) category

Item list

DELETE

You can delete images on the media (p. 38).

PHOTO CAPTURE

You can save a selected frame from a recorded movie as a still image (p. 41).

MOVIE DUB

You can dub movies recorded on the hard disk to a "Memory Stick PRO Duo" (p. 42).

PHOTO COPY

You can copy still images recorded on the hard disk to a "Memory Stick PRO Duo" (p. 43).

EDIT

You can edit the images (p. 44).

PLAYLIST EDIT

You can create and edit a Playlist (p. 45).

PRINT

You can print still images on a connected PictBridge printer (p. 50).

USB CONNECT

You can connect the camcorder to a computer etc. via the USB cable (p. 92). See "Operating Guide" for connecting to the computer.

Deleting images

You can delete images recorded on the media using your camcorder.

Notes

- You cannot restore images once they are deleted.
- Do not remove the battery pack or the AC Adaptor from your camcorder while deleting the images. It may damage the media.
- Do not eject "Memory Stick PRO Duo" while deleting movies from the "Memory Stick PRO Duo."
- When write-protection is set to the images in the "Memory Stick PRO Duo" by another device, you cannot delete the images from the "Memory Stick PRO Duo."

Tips

- You can select up to 100 images at one time.
- You can delete an image on the playback screen from the (OPTION) menu.
- To delete all images recorded on the media and recover all the recordable space of the media, format the media (p. 53).

Deleting movies

You can free media space by deleting image data from the media.
You can check the free media space using [MEDIA INFO] (p. 52).
Select beforehand the media which contains the movie you want to delete (p. 20).

Notes

- Important data should be saved on external media (p. 37).

1 Touch (HOME) → (OTHERS) → [DELETE].

2 Touch [DELETE].

3 Touch [DELETE].

4 Touch the movie to be deleted.

The selected image is marked with ✔.
Press and hold the image on the LCD screen to confirm.
Touch ↩ to return to the previous screen.

5 Touch OK → [YES] → OK.

To delete all movies at one time

In step **3**, touch [DELETE ALL] → [YES] → [YES] → OK.

To delete all the movies recorded on the same day at one time

① Touch [DELETE by date] in step **3**.

② Touch ▲ / ▼ to select the recording date of the desired movies, then touch OK.
The movies recorded on the selected date are displayed on the screen.
Touch the movie on the LCD screen to confirm. Touch ↩ to return to the previous screen.

③ Touch OK → [YES] → OK.

Notes

- If the deleted movie is included in a Playlist (p. 45), the movie added to the Playlist is deleted also from the Playlist.

Deleting still images

Select beforehand the media which contains the still image you want to delete (p. 20).

1 Touch (HOME) → (OTHERS) → [DELETE].

2 Touch [DELETE].

3 Touch [DELETE].

4 Touch the still image to be deleted.

The selected still image is marked with ✔.
Press and hold the still image on the LCD screen to confirm.
Touch ↩ to return to the previous screen.

5 Touch OK → [YES] → OK.

To delete all still images at one time

In step **3**, touch [DELETE ALL] → [YES] → [YES] → OK.

To delete all the still images recorded on the same day at one time

This function is available only when the internal hard disk is selected as the media.

① Touch [DELETE by date] in step **3**.

② Touch ▲ / ▼ to select the recording date of the desired still images, then touch OK.
The still images recorded on the selected date are displayed on the screen.
Touch the still image on the LCD screen to confirm. Touch ↩ to return to the previous screen.

③ Touch OK → [YES] → OK.

Capturing a still image from a movie

You can capture a still image at any point during movie playback.
Select the media which contains movies, and the media where you want to save still images (p. 20).

1 Touch (HOME) → (OTHERS) → [PHOTO CAPTURE].

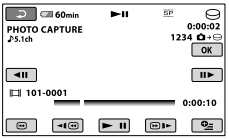
The [PHOTO CAPTURE] screen appears.

2 Touch the movie to be captured.

The selected movie starts playback.

3 Touch at the point where you want to capture.

The movie pauses.



4 Touch OK.

After the still image is saved on the media you selected, the camcorder returns to pause mode.

To continue capturing

Touch , then follow the steps **3** to **4**. To capture a still image from another movie, touch then follow the steps **2** to **4**.

To finish capturing

Touch → .

Notes

- The image size is fixed depending on the aspect ratio of the movies:
  - [0.2M] in the aspect ratio 16:9
  - [VGA(0.3M)] in the aspect ratio 4:3
- The media where you want to save still images has to have enough free space.
- Recording date and time of created still images are the same as the recording date and time of the movies.
- If the movies do not have data code, recording date and time of still images is saved as the time you create them from movies.

Dubbing/copying images to a "Memory Stick PRO Duo" with your camcorder

Dubbing movies

You can dub movies recorded on the hard disk of your camcorder to a "Memory Stick PRO Duo."
Insert a "Memory Stick PRO Duo" into your camcorder before the operation.

Notes

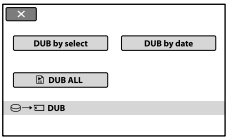
- When you record a movie on a "Memory Stick PRO Duo" for the first time, create the image database file (p. 55) by touching (HOME) → (MANAGE MEDIA) → [REPAIR IMG. DB F.].
- Connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor to prevent your camcorder from running out of power during dubbing.

Tips

- The original movie will not be deleted after dubbing.
- All included images on a playlist will be dubbed.

1 Touch (HOME) → (OTHERS) → [MOVIE DUB].

The [MOVIE DUB] screen appears.



2 Touch the type of dubbing.

[DUB by select]: To select movies and dub

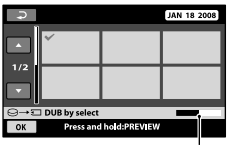
[DUB by date]: To dub all movies of a specified date

[DUB ALL]: To dub playlists

When you select playlist as the source of dubbing, follow the on-screen instructions to dub.

3 Select the movie to be dubbed.

[DUB by select]: Touch the movie thumbnail you want to dub to place the ✓ mark on the thumbnail. You can select several movies.

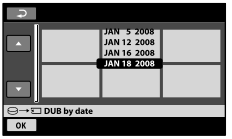


Remaining capacity of "Memory Stick PRO Duo"

Tips

- Press and hold the thumbnail to preview. Touch to return to the selection screen.

[DUB by date]: Select the recording date of the movie to be dubbed, then touch OK. You cannot select multiple dates.



4 Touch OK → [YES].

Dubbing starts.

Tips

- To check the dubbed movies after dubbing is complete, select [MEMORY STICK] on [MOVIE MEDIA SET] and play them back (p. 20).

Copying still images

You can copy still images from the hard disk to a "Memory Stick PRO Duo." Insert a "Memory Stick PRO Duo" into your camcorder before the operation.

Notes

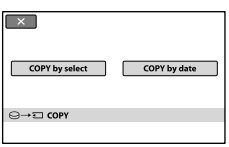
- Connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor to prevent your camcorder from running out of power during dubbing.

Tips

- The original still images will not be deleted after copying.

1 Touch (HOME) → (OTHERS) → [PHOTO COPY].

The [PHOTO COPY] screen appears.



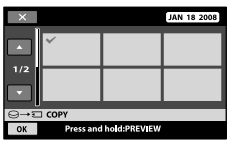
2 Touch the type of copying.

[COPY by select]: To select a still image and copy

[COPY by date]: To copy all still images of a specified date

3 Select the still image to be copied.

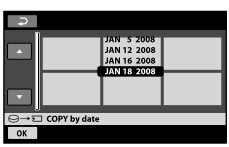
[COPY by select]: Touch the still image thumbnail you want to copy to place the ✔ mark on the thumbnail. You can select several still images.



Tips

- Press and hold the thumbnail to preview. Touch [↩] to return to the selection screen.

[COPY by date]: Select the recording date of the still image to be copied, then touch [OK]. You cannot select multiple dates.



4 Touch [OK] → [YES].

Copying starts.

Tips

- To check the copied still images after copying is complete, select [MEMORY STICK] on [PHOTO MEDIA SET] and play them back (p. 20).

Dividing a movie

You can divide movies on the media of your camcorder.
Select beforehand the media which contains the movie you want to divide (p. 20).

1 Touch (HOME) → (OTHERS) → [EDIT].

2 Touch [DIVIDE].

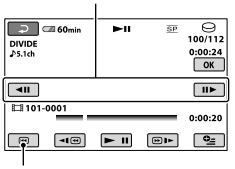
3 Touch the movie to be divided.

The selected movie starts playback.

4 Touch ▶II at the point where you want to divide the movie into scenes.

The movie pauses.

Adjusts the dividing point with more precision after the dividing point has been selected with ▶II.



Returns to the beginning of the selected movie.

Play and pause toggles as you press ▶II.

5 Touch OK → [YES] → OK.

Notes

- You cannot restore movies once they are divided.
- Do not remove the battery pack or the AC Adaptor from your camcorder while dividing the movie. It may damage the media.
  Also, do not remove the "Memory Stick PRO Duo" while editing movies on the "Memory Stick PRO Duo."
- A slight difference may occur from the point where you touch ▶II and the actual dividing point, as your camcorder selects the dividing point based on about half-second increments.
- If you divide the original movie, the movie added to the Playlist will also be divided.

Creating the Playlist

The Playlist is a list showing thumbnails of the movies that you have selected. The original movies are not changed even if you edit or delete the movies added to the Playlist. Select the media you want to create or play a Playlist before the operation (p. 20).

1 Touch (HOME) → (OTHERS) → [PLAYLIST EDIT].

2 Touch [ADD].

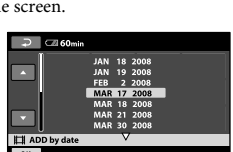
3 Touch the movie to be added to the Playlist.

The selected movie is marked with ✓.
Press and hold the movie on the LCD screen to confirm.
Touch to return to the previous screen.

4 Touch OK → [YES] → OK.

To add all the movies recorded on the same day at one time

① Touch [ADD by date] in step **2**.
The recording dates of movies are displayed on the screen.



② Touch / to select the recording date of the desired movie.
③ Touch OK while the selected recording date is highlighted.
The movies recorded on the selected date are displayed on the screen.
Touch the image on the LCD screen to confirm. Touch to return to the previous screen.
④ Touch OK → [YES] → OK.

Notes

- Do not remove the battery pack or the AC Adaptor from your camcorder while editing the Playlist. Also, do not remove the "Memory Stick PRO Duo" while editing movies on the "Memory Stick PRO Duo."
- You cannot add still images to a Playlist.

Tips

- You can add a maximum of 99 movies to the Playlist.
- You can add a movie when viewing it by selecting (OPTION) → tab → [ADD].
- You can copy the Playlist to a DVD as it is, by using the supplied software.

Playing the Playlist

Select beforehand the media to use to create or play a playlist (p. 20).

1 Touch (HOME) → (VIEW IMAGES) → [PLAYLIST].

The Playlist screen appears.

2 Touch the image from which you want to play back.

The Playlist is played back from the selected image to the end, then the screen returns to the Playlist screen.

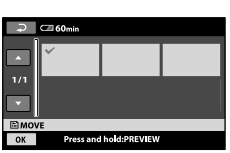
To erase unnecessary movies from the Playlist

① Touch (HOME) → (OTHERS) → [PLAYLIST EDIT].
② Touch [ERASE].
To erase all the movies from the Playlist, touch [ERASE ALL] → [YES] → [YES] → OK.
③ Select the movie to be deleted from the list.

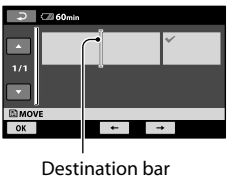
The selected movie is marked with ✓.
Press and hold the movie on the LCD screen to confirm.
Touch to return to the previous screen.
④ Touch OK → [YES] → OK.

To change the order within the Playlist

① Touch (HOME) → (OTHERS) → [PLAYLIST EDIT].
② Touch [MOVE].
③ Select the movie to be moved.



The selected movie is marked with ✓.
Press and hold the movie on the LCD screen to confirm.
Touch to return to the previous screen.
④ Touch OK.
⑤ Select the destination with ←/→.



Destination bar

⑥ Touch OK → [YES] → OK.

Tips

- When you select multiple movies, the movies are moved following the order appeared in the Playlist.

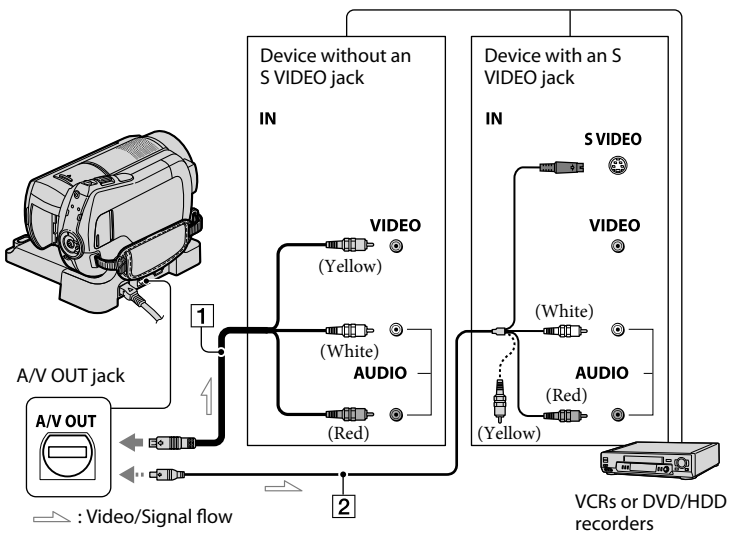
Dubbing to other devices

Connecting with the A/V connecting cable

You can dub images played back on your camcorder to other recording devices, such as VCRs or DVD/HDD recorders. Connect the device in either of the following ways.
Connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 13). Refer also to the instruction manuals supplied with the devices to be connected.
Select beforehand the media which contains the image you want to dub (p. 20).

Notes

- Since dubbing is performed via analog data transfer, the image quality may deteriorate.



1 A/V connecting cable (supplied)
The Handycam Station has an A/V OUT jack (p. 102) and the camcorder has an A/V Remote Connector (p. 99). Connect the A/V connecting cable either to the Handycam Station or to your camcorder, according to your setup.

2 A/V connecting cable with S VIDEO (optional)
When connecting to another device via the S VIDEO jack, by using an A/V connecting cable with an S VIDEO cable (optional), higher quality images can be produced than with an A/V connecting cable. Connect the white and red plugs (left/right audio) and the S VIDEO plug (S VIDEO channel) of the A/V connecting cable with an S VIDEO cable (optional). The yellow plug connection is not necessary. Connecting only the S VIDEO plug will not output audio.

Notes

- To hide the screen indicators (such as a counter, etc.) on the screen of the monitor device connected, touch (HOME) → (SETTINGS) → [OUTPUT SETTINGS] → [DISP OUTPUT] → [LCD PANEL] (the default setting) (p. 67).
  To record the date/time and camera settings data, display them on the screen (p. 64).
- When you are connecting your camcorder to a monaural device, connect the yellow plug of the A/V connecting cable to the video input jack, and the red (right channel) or the white (left channel) plug to the audio input jack on the device.

1 Turn on your camcorder, and press (VIEW IMAGES).

Set [TV TYPE] according to the display device (p. 36).

2 Insert the recording media in the recording device.

If your recording device has an input selector, set it to the input mode.

3 Connect your camcorder to the recording device (VCR or DVD/HDD recorder) with the A/V connecting cable (supplied) 1 or an A/V connecting cable with S VIDEO (optional) 2.

Connect your camcorder to the input jacks of the recording device.

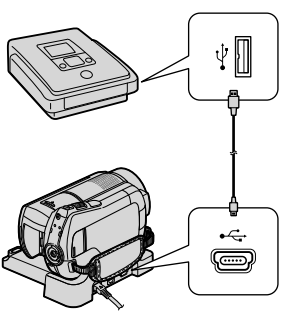
4 Start playback on your camcorder, and record it on the recording device.

Refer to the instruction manuals supplied with your recording device for details.

5 When dubbing is finished, stop the recording device, and then your camcorder.

Connecting with the USB cable

Connect your camcorder to a DVD writer or a DVD recorder, etc., compatible with movie dubbing via USB connection to dub without image degradation.
Connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor (p. 13). Refer also to the instruction manuals supplied with the device to be connected.

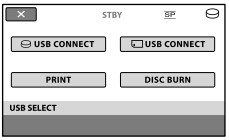


1 Turn on your camcorder.

2 Connect the (USB) jack of your camcorder and a DVD writer, etc., with the supplied USB cable.

The [USB SELECT] screen appears automatically.

3 Touch [USB CONNECT] or [USB CONNECT] according to the media on which the movie you want to dub is recorded.



4 Operate the device to be connected, and start recording.

For details, refer to the instruction manuals supplied with the device to be connected.

5 After dubbing is complete, touch [END] → [YES], then disconnect the USB cable.

Tips

- If the [USB SELECT] screen does not appear, touch (HOME) → (OTHERS) → [USB CONNECT].

Printing recorded still images (PictBridge compliant printer)

You can print out still images using a PictBridge compliant printer, without connecting the camcorder to a computer.

PictBridge

Connect your camcorder to the AC Adaptor to obtain power from the wall outlet (wall socket) (p. 13). Turn on the printer.
Select beforehand the media which contains the still image you want to print (p. 20).
To print still images on a "Memory Stick PRO Duo," insert the "Memory Stick PRO Duo" containing them into your camcorder.

1 Connect the Handycam Station to the wall outlet (wall socket) using the supplied AC Adaptor.

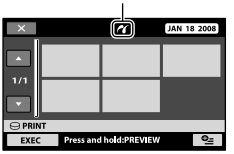
2 Set the camcorder onto the Handycam Station securely. Turn the POWER switch to turn it on.

3 Connect the (USB) jack of the Handycam Station to the printer using the supplied USB cable (p. 102).

The [USB SELECT] screen appears automatically.

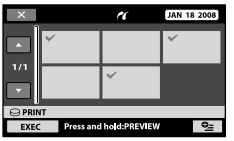
4 Touch [PRINT].

When connection is complete, (PictBridge connecting) appears on the screen.



You can select a still image on the screen.

5 Touch the still image to be printed.



The selected still image is marked with ✓.
Press and hold the still image on the LCD screen to confirm.
Touch to return to the previous screen.

6 Touch (OPTION), set the following options, then touch OK.

[COPIES]: Set the number of copies of a still image to be printed. You can set up to 20 copies.
[DATE/TIME]: Select [DATE], [DAY&TIME], or [OFF] (no date/time printed).
[SIZE]: Select the paper size.
If you do not change the setting, go to step **7**.

7 **Touch [EXEC] → [YES] → OK.**

The still image selection screen appears again.

To finish printing

Touch ☒ on the screen in step **4**.

Notes

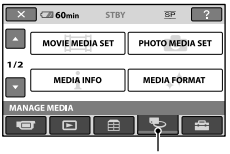
- We can guarantee the operation of only models that are PictBridge compatible.
- Refer also to the instruction manual of the printer to be used.
- Do not attempt the following operations when is on the screen. The operations may not be performed properly.
  - Operate the POWER switch
  - Press ▶ (VIEW IMAGES)
  - Remove your camcorder from the Handycam Station
  - Remove the USB cable from your camcorder, the Handycam Station, or the printer
  - Remove the "Memory Stick PRO Duo" from your camcorder while printing still images saved on it
- If the printer stops working, disconnect the USB cable, turn the printer off and on again, and restart the operation from the beginning.
- You can select only the paper sizes that the printer can print.
- On some printer models, the top, bottom, right, and left edges of images may be trimmed. If you print a still image recorded in a 16:9 (wide) ratio, the left and right ends of the image may be trimmed widely.
- Some printer models may not support the date printing function. Refer to your printer's instruction manual for details.
- The still images described below may not be printed out:
  - The still image edited by a computer
  - The still image recorded by another devices
  - The still image file exceeding 4 MB
  - The still image file larger than 3,680 × 2,760 pixels

Tips

- PictBridge is an industry standard established by the Camera & Imaging Products Association (CIPA). You can print still images without using a computer by connecting a printer directly to a digital video camera or digital still camera, regardless of model or manufacturer.
- You can print a still image on the still image playback screen by touching (OPTION) → ▶ tab → [PRINT].

(MANAGE MEDIA) category

This category enables you to use the hard disk or a "Memory Stick PRO Duo" for various purposes.



(MANAGE MEDIA) category

Item list

MOVIE MEDIA SET

You can select the media for movies (p. 20).

PHOTO MEDIA SET

You can select the media for still images (p. 20).

MEDIA INFO

You can display the media infomation such as recording time (p. 52).

MEDIA FORMAT

You can format the media and recover the recordable free space (p. 53).

REPAIR IMG.DB F.

You can repair the mangement information of the media (p. 55).

Checking the media information

You can check the remaining recordable time for each image quality of the media selected on [MOVIE MEDIA SET] (p. 20).

Notes

- During Easy Handycam operation, media information cannot be checked. Cancel Easy Handycam operation to check.

Touch (HOME) → (MANAGE MEDIA) → [MEDIA INFO].

Tips

- You can check the recordable free space, etc., by touching → on the lower right screen.

To turn off the display

Touch ×.

Notes

- The calculation for media space is 1MB = 1,048,576 bytes. The fractions less than MB are discarded when the media space is displayed. The displayed size of the whole hard disk space will be slightly smaller than the size shown below despite displaying both free and used hard disk space.
  - DCR-SR220: 60,000 MB
- Since there is a management file area, the used space is not displayed as 0MB even if you perform [MEDIA FORMAT] (p. 53).

Tips

- Only the information of the media selected on [MOVIE MEDIA SET] is displayed. Change the media setting as necessary (p. 20).

Deleting all images (Formatting)

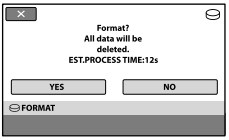
Formatting deletes all the images to recover recordable free space.
Connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 13).

Notes

- To avoid the loss of important images, you should save them (p. 37) before performing [MEDIA FORMAT].
- While [MEDIA FORMAT] is activated, do not disconnect the AC Adaptor.

Formatting the hard disk

1 Touch (HOME) → (MANAGE MEDIA) → [MEDIA FORMAT] → [HDD].



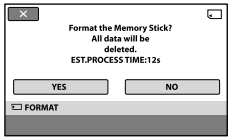
2 Touch [YES] → [YES].

3 When [Completed.] appears, touch OK.

Formatting the "Memory Stick PRO Duo"

1 Insert the "Memory Stick PRO Duo" to be formatted into your camcorder.

2 Touch (HOME) → (MANAGE MEDIA) → [MEDIA FORMAT] → [MEMORY STICK].



3 Touch [YES] → [YES].

4 When [Completed.] appears, touch OK.

Notes

- While the ACCESS lamp is lit, do not remove the "Memory Stick PRO Duo" from your camcorder.
- Even the still images protected with another device against accidental deletion are also deleted.
- Do not attempt the following operations when [Executing…] is on the screen:
  - Operate the POWER switch or buttons
  - Remove the "Memory Stick PRO Duo"

Preventing data on the hard disk of the camcorder from being recovered

[EMPTY] allows you to write unintelligible data onto the hard disk of the camcorder. In this way, it may become more difficult to recover any original data. When you dispose of or transfer the camcorder to others, it is recommended that you perform [EMPTY].

Notes

- If you perform [EMPTY], all the images are deleted. To avoid the loss of important images, they should be saved (p. 37) before performing [EMPTY].
- You cannot perform [EMPTY] unless you connect the AC Adaptor to the wall outlet (wall socket).
- Disconnect all cables except the AC Adaptor. Do not disconnect the AC Adaptor during the operation.
- While performing [EMPTY], do not apply any vibrations or shocks.

1 Connect the AC Adaptor to the DC IN jack on your camcorder and a wall outlet (wall socket).

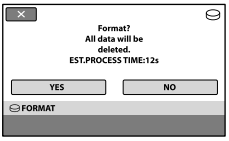
2 Turn on your camcorder.

Tips

- You can perform this operation, whichever position of the (Movie) lamp/ (Still) lamp is lit.

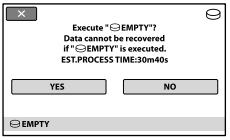
3 Touch (HOME) → (MANAGE MEDIA) → [MEDIA FORMAT] → [HDD].

The [FORMAT] screen appears.



4 Press and hold the (back light) button for a few seconds.

The [EMPTY] screen appears.



5 Touch [YES] → [YES].

6 When [Completed.] appears, touch OK.

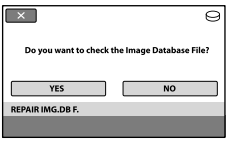
Notes

- The actual performing time for [EMPTY] is approx. 60 minutes.
- If you stop performing [EMPTY] while [Executing…] appears, be sure to complete the operation by performing [MEDIA FORMAT] or [EMPTY] when you use the camcorder next time.

Repairing the image database file

This function checks the management information and the consistency of movies/still images in the media and repairs any inconsistencies found.

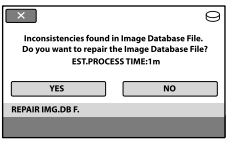
1 Touch (HOME) → (MANAGE MEDIA) → [REPAIR IMG.DB F.] → [HDD] or [MEMORY STICK].



2 Touch [YES].

Your camcorder will check the management file.

When mismatching is not found, touch OK to finish.



3 Touch [YES].

4 When [Completed.] appears, touch OK.

Notes

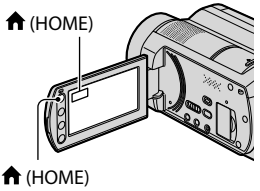
- Do not apply mechanical shock or vibration to the camcorder during this operation.
- Do not disconnect the battery or AC Adaptor while repairing.
- While the image database file on the "Memory Stick PRO Duo" are being repaired, do not remove the "Memory Stick PRO Duo."
- Repairing of a "Memory Stick PRO Duo" and the hard disk are done separately.

What you can do with the (SETTINGS) category of the HOME MENU

You can change the recording functions and the operating settings for your convenience.

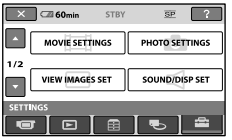
Using the HOME MENU

1 Turn on your camcorder, then press (HOME).



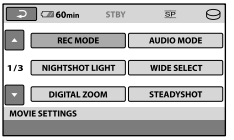
(SETTINGS) category

2 Touch (SETTINGS).



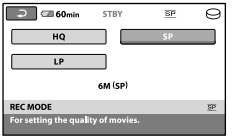
3 Touch the desired setup item.

If the item is not on the screen, touch / to change the page.



4 Touch the desired item.

If the item is not on the screen, touch / to change the page.



5 Change the setting, then touch OK.

List of the (SETTINGS) category items

MOVIE SETTINGS (p. 58)

Items	Page
REC MODE	58
AUDIO MODE	58
NIGHTSHOT LIGHT	58
WIDE SELECT	59
DIGITAL ZOOM	59
STEADYSHOT	59
AUTO SLW SHUTTR	59
GUIDEFRAME	59
ZEBRA	59
REMAINING SET	60
FLASH MODE*	60
FLASH LEVEL	63
REDEYE REDUC	63
FACE DETECTION	61
INDEX SET*	61
CONVERSION LENS	61

PHOTO SETTINGS (p. 62)

Items	Page
IMAGE SIZE*	62
FILE NO.	62
NIGHTSHOT LIGHT	58
STEADYSHOT	59
GUIDEFRAME	59
ZEBRA	59
FLASH MODE*	60
FLASH LEVEL	63
REDEYE REDUC	63
FACE DETECTION	61
CONVERSION LENS	61

VIEW IMAGES SET (p. 64)

Items	Page
DATA CODE	64
DISPLAY	65

SOUND/DISP SET** (p. 66)

Items	Page
VOLUME*	66
BEEP*	66
LCD BRIGHT	66
LCD BL LEVEL	66
LCD COLOR	66

OUTPUT SETTINGS (p. 67)

Items	Page
TV TYPE	67
DISP OUTPUT	67

CLOCK/ LANG (p. 68)

Items	Page
CLOCK SET*	17
AREA SET	68
DST SET/SUMMERTIME	68
LANGUAGE SET*	68

GENERAL SET (p. 69)

Items	Page
DEMO MODE	69
CALIBRATION	96
A.SHUT OFF	69
QUICK ON STBY	69
REMOTE CTRL	69
DROP SENSOR	69

* You can set these items also during Easy Handycam operation (p. 22).

** [SOUND SETTINGS] (during Easy Handycam operation)

MOVIE SETTINGS

(Items for recording movies)

Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

The default settings are marked with ▶.

REC MODE

You can select a recording mode to record a movie with the image quality from 3 levels.

HQ
Records in high quality mode.
(9M (HQ))

▶**SP**
Records in standard quality mode.
(6M (SP))

LP
Increases the recording time (Long Play).
(3M (LP))

Recordable time on hard disk (approx.)

Recording mode	Recordable time
HQ	14 hours 40 min.
SP	21 hours 50 min.
LP	41 hours 50 min.

Recordable time on "Memory Stick PRO Duo" (approx.)

(min.)

	HQ	SP	LP
512MB	6 (5)	9 (5)	15 (10)
1GB	10 (10)	20 (10)	35 (25)
2GB	25 (25)	40 (25)	80 (50)
4GB	55 (50)	80 (50)	160 (105)
8GB	115 (100)	170 (100)	325 (215)

• The time in ( ) is the minimum recording time.

Notes

• When using a "Memory Stick PRO Duo" made by Sony Corporation. The recordable time for movies varies depending on the recording conditions, [REC MODE], and the type of "Memory Stick."
• If you record in LP mode, the quality of scenes may be degraded, or scenes with quick movements may appear with block noise when you play back the movie.

AUDIO MODE

You can change the recording sound format.

▶**5.1ch SURROUND (♪5.1ch)**
Records sound in 5.1ch surround.

2ch STEREO (♪2ch)
Records sound in 2ch stereo.

Notes

• ♪2ch appears temporarily regardless of the setting when you play back movies recorded on the setting; [RECORD SOUND] to [OFF] of [SMTH SLW REC].

NIGHTSHOT LIGHT

When using either the NightShot (p. 28) or [SUPER NIGHTSHOT] (p. 76) function to record, you can record clearer images by setting [NIGHTSHOT LIGHT], which emits infrared light (invisible), to [ON] (the default setting).

Notes

- Do not cover the infrared port with your fingers or other objects.
- Remove the conversion lens (optional).
- The maximum shooting distance using [NIGHTSHOT LIGHT] is about 3 m (10 feet).

WIDE SELECT

When recording images, you can select the aspect ratio according to the TV connected. Refer also to the instruction manuals supplied with your TV.

▶ 16:9 WIDE

Records images to the full screen on a 16:9 (wide) TV screen.

4:3(4:3)

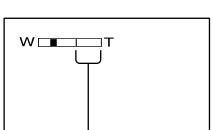
Records images to the full screen on a 4:3 TV screen.

Notes

- Set [TV TYPE] correctly according to the TV connected for playback (p. 35).

DIGITAL ZOOM

You can select the maximum zoom level in case you want to zoom greater than optical zoom magnification (p. 27). Note that the image quality decreases when you use the digital zoom.



The right side of the bar shows the digital zooming factor. The zooming zone appears when you select the zooming level.

▶ OFF

Up to 15 × zoom is performed optically.

30×

Up to 15 × zoom is performed optically, and after that, up to 30 × zoom is performed digitally.

180×

Up to 15 × zoom is performed optically, and after that, up to 180 × zoom is performed digitally.

STEADYSHOT

You can compensate for camera shake (the default setting is [ON]). Set [STEADYSHOT] to [OFF] (OFF) when using a tripod (optional), then the image becomes natural.

AUTO SLW SHUTTR (Auto Slow Shutter)

When recording in dark places, the shutter speed is automatically reduced to 1/30 second (the default setting is [ON]).

GUIDEFRAME

You can display the frame and check that the subject is horizontal or vertical by setting [GUIDEFRAME] to [ON]. The frame is not recorded. Press DISP/BATT INFO to make the frame disappear. (The default setting is [OFF]).

Tips

- Positioning the subject at the cross point of the guide frame makes a balanced composition.

ZEBRA

Diagonal stripes appear in portions of the screen where brightness is at a preset level. This is useful as a guide when adjusting the brightness. When you change the default setting, ▨ is displayed. The zebra pattern is not recorded.

▶ OFF

The zebra pattern is not displayed.

70

The zebra pattern appears at a screen brightness level of about 70 IRE.

100

The zebra pattern appears at a screen brightness level of about 100 IRE or higher.

Notes

- Portions of the screen where brightness is about 100 IRE or above may appear overexposed.

Tips

- IRE represents the screen brightness level.

REMAINING SET

►ON

Always displays the remaining media capacity indicator.

AUTO

Displays the remaining recording time of movies for about 8 seconds in the following situations.

- When your camcorder recognizes the remaining media capacity when the POWER switch is set to (Movie)
- When you press DISP/BATT INFO to switch the indicator from off to on when the POWER switch is set to (Movie)
- When you select the movie recording mode on the HOME MENU

Notes

- When the remaining recordable time for movies is less than 5 minutes, the indicator stays on the screen.

FLASH MODE

You can select the flash setting when you record still images with the built-in flash or an external flash (optional) that is compatible with your camcorder.

►AUTO

Automatically flashes when there is insufficient ambient light.

ON (⚡)

Always uses the flash regardless of the surrounding brightness.

OFF (⊘⚡)

Records without flash.

Notes

- The recommended distance to the subject when using the built-in flash is approximately 0.3 to 2.5 m (1 to 8 feet).
- Remove any dust from the surface of the flash before using it. Flash effect may be impaired if heat discoloration or dust obscures the lamp.
- The ⚡/CHG (charge) lamp flickers while charging the flash, and remains lit when the battery charge is complete.
- If you use the flash in bright places such as when shooting a backlit subject, the flash may not be effective.

FLASH LEVEL

You can set this function when you use the built-in flash, or an external flash (optional) that is compatible you're your camcorder.

HIGH (⚡+)

Makes the flash level higher.

►NORMAL (⚡)

LOW (⚡−)

Makes the flash level lower.

REDEYE REDUC

You can set this function when you record still images using the built-in flash or an external flash (optional) that is compatible with your camcorder.
When you set [REDEYE REDUC] to [ON], then set [FLASH MODE] to [AUTO] or [ON], 👁 appears. You can prevent redeye by activating the pre-flash before the flash flashes.

Notes

- The redeye reduction may not produce the desired effect due to individual differences and other conditions.

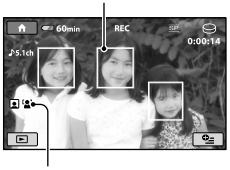
FACE DETECTION

Detects faces and adjusts the focus, color and exposure automatically.

► ON ( )

Detects a face and shows a frame on it. The detected face image is optimized automatically.

Face detection frame



Face detection mark

ON[NO FRAMES] ( )

Detects a face without showing a frame. The detected face image is optimized automatically.

OFF

Does not use [FACE DETECTION] function.

Notes

- Faces may not be detected depending on recording conditions.
- [FACE DETECTION] may not function properly depending on recording conditions. Set [FACE DETECTION] to [OFF] in this case.

INDEX SET

The camcorder detects faces automatically during movie recording. The default setting is [ON].

Face icons and their meanings

: This icon appears when the setting is [ON].
: This icon flashes when your camcorder detects a face. The icon stops flashing when the face is recorded in Face Index.
: This icon appears when faces cannot be recorded in Face Index.
To play back scenes using Face Index, see page 32.

Notes

- The number of faces detected in a movie is limited.

CONVERSION LENS

When using a conversion lens (optional), use this function to record using the optimum compensation for camera shake for each lens.
You can select [WIDE CONVERSION](W) or [TELE CONVERSION](T). (The default setting is [OFF].)

PHOTO SETTINGS

(Items for recording still images)

Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

The default settings are marked with ▶.

IMAGE SIZE

▶4.0M (4.0M)

Records still images clearly (2,304 × 1,728).

3.0M (3.0M)

Records still images clearly in the 16:9 (wide) ratio (2,304 × 1,296).

1.9M (1.9M)

Allows you to record more still images in relatively clear quality (1,600 × 1,200).

VGA(0.3M) (VGA)

Allows the maximum number of still images to be recorded (640 × 480).

Capacity of the "Memory Stick PRO Duo" and the number of recordable images (approx.)*

	4.0M 2304 × 1728 4.0M
512MB	225
1GB	475
2GB	970
4GB	1900
8GB	3850

* The number of recordable still images shown is for the maximum image size of your camcorder. The actual number of recordable still images is displayed on the LCD screen during recording.

Notes

- The selected image size is effective while the (still) lamp is lit.
- When using a "Memory Stick PRO Duo" made by Sony Corporation. The number of recordable still images varies depending on the recording conditions or type of "Memory Stick."
- You can record up to 9,999 still images on the hard disk.
- Still image resolution is obtained by the unique pixel array of Sony's ClearVid CMOS Sensor and image processing system (BIONZ).

Tips

- You can use a "Memory Stick Duo" with a capacity of under 512MB for recording still images.

FILE NO. (File number)

▶SERIES

Assigns file numbers of still images in sequence even if the "Memory Stick PRO Duo" is replaced with another one. The file number is reset when a new folder is created or the recording folder is replaced with another.

RESET

Assigns file numbers in sequence, following the largest file number existing on the current recording media.

NIGHTSHOT LIGHT

See page 58.

STEADYSHOT

See page 59.

GUIDEFRAME

See page 59.

ZEBRA

See page 59.

FLASH MODE

See page 60.

FLASH LEVEL

See page 60.

REDEYE REDUC

See page 60.

FACE DETECTION

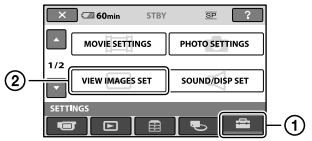
See page 61.

CONVERSION LENS

See page 61.

VIEW IMAGES SET

(Items to customize the display)



Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

The default settings are marked with ▶.

DATA CODE

During playback, displays the information (data code) recorded automatically at the time of recording.

▶ OFF

Data code is not displayed.

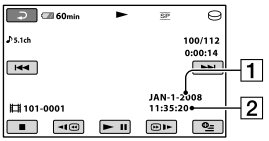
DATE/TIME

Displays the date and time.

CAMERA DATA

Displays camera setting data.

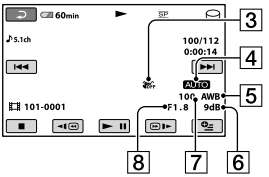
DATE/TIME



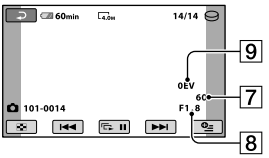
1 Date
2 Time

CAMERA DATA

Movie



Still image



3 SteadyShot off
4 Brightness
5 White balance
6 Gain
7 Shutter speed
8 Aperture value
9 Exposure

Tips

- ϟ appears for an image recorded using a flash.
- The data code is displayed on the TV screen if you connect your camcorder to a TV.
- The indicator toggles through the following sequences as you press DATA CODE on the Remote Commander: [DATE/TIME] → [CAMERA DATA] → [OFF] (no indication).
- Depending on the media condition, bars [--:--:--] appear.

DISPLAY

You can select the number of thumbnails that appear on the [VISUAL INDEX] screen.

Thumbnail ☞ Glossary (p. 107)

▶ ZOOM LINK

Change the number of thumbnails (6 or 12) with the power zoom lever on your camcorder.*

6IMAGES

Displays thumbnails of 6 images.

12IMAGES

Displays thumbnails of 12 images.

* You can operate with the zoom buttons on the LCD screen. Also, you can operate with the buttons on the Remote Commander.

SOUND/DISP SET

(Items to adjust sound and the screen)

Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

The default settings are marked with ▶.

VOLUME

Touch −/+ to adjust the volume (p. 31).

BEEP

▶ **ON**
A melody sounds when you start/stop recording, or operate the touch panel.

OFF
Cancels the melody and shutter sound.

LCD BRIGHT

You can adjust the brightness of the LCD screen.

① Adjust the brightness with − / +.
② Touch OK.

Tips

- This adjustment does not affect the recorded images in any way.

LCD BL LEVEL (LCD backlight level)

You can adjust the brightness of the LCD screen's backlight.

▶ **NORMAL**
Standard brightness.

BRIGHT
Brightens the LCD screen.

Notes

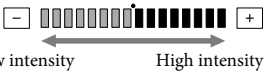
- When you connect your camcorder to a wall outlet (wall socket), [BRIGHT] is automatically selected for the setting.
- When you select [BRIGHT], battery life is slightly reduced during recording.
- If you open the LCD panel 180 degrees to face the screen outside and close the LCD panel to the camcorder body, the setting becomes [NORMAL] automatically.

Tips

- This adjustment does not affect the recorded images in any way.

LCD COLOR

You can adjust the color of the LCD screen with −/+.

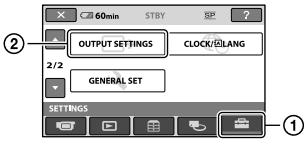


Tips

- This adjustment does not affect the recorded images in any way.

OUTPUT SETTINGS

(Items for when connecting other devices)



Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

The default settings are marked with ▶.

TV TYPE

See page 36.

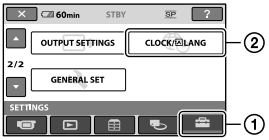
DISP OUTPUT

▶ LCD PANEL
Shows displays such as the time code on the LCD screen.

V-OUT/PANEL
Shows displays such as the time code on the TV screen and the LCD screen.

CLOCK/ LANG

(Items to set clock and language)



Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

CLOCK SET

See page 17.

AREA SET

You can adjust a time difference without stopping the clock.
Set your local area using ▲ / ▼ when using your camcorder in other time zones. Refer to the world time difference on page 91.

DST SET/SUMMERTIME

You can change this setting without stopping the clock.
Set to [ON] to move the time forward 1 hour.

LANGUAGE SET

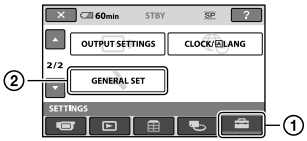
You can select the language to be used on the LCD screen.

Tips

- Your camcorder offers [ENG[SIMP]] (simplified English) for when you cannot find your native tongue among the options.

GENERAL SET

(Other setup items)



Touch ①, then ②.
If the item is not on the screen, touch ▲ / ▼ to change the page.

How to set

(HOME) menu → page 56
(OPTION) menu → page 71

The default settings are marked with ▶.

DEMO MODE

The default setting is [ON], allowing you to view the demonstration in about 10 minutes, after you turn the POWER switch to (Movie).

Tips

- The demonstration will be suspended in the following situations.
  - When you press START/STOP or PHOTO
  - When you touch the screen during the demonstration (The demonstration starts again after about 10 minutes)
  - When you turn the POWER switch to (Still)
  - When you press (HOME) or (VIEW IMAGES)

CALIBRATION

See page 96.

A.SHUT OFF (Auto shut off)

▶5min
The camcorder is automatically turned off when you do not operate your camcorder for more than approximately 5 minutes.

NEVER
The camcorder is not automatically turned off.

Notes

- When you connect your camcorder to a wall outlet (wall socket), [A.SHUT OFF] is automatically set to [NEVER].

QUICK ON STBY (Quick on standby)

You can set the time that you want the camcorder to remain on before turning off in sleep mode (p. 27). (The default setting is [10min].)

Notes

- [A.SHUT OFF] does not work during sleep mode.

REMOTE CTRL (Remote control)

The default setting is [ON], allowing you to use the supplied Remote Commander (p. 103).

Tips

- Set to [OFF] to prevent your camcorder from responding to a command sent by another VCR remote control unit.

DROP SENSOR

[DROP SENSOR] is set to [ON] as the default setting. When the drop sensor has detected that the camcorder has been dropped (appears), recording or playing back recorded images may be disabled to protect the internal hard disk.

Notes

- Set the drop sensor to [ON] (default setting) when you use the camcorder. Otherwise, if you drop the camcorder, the internal hard disk may be damaged.

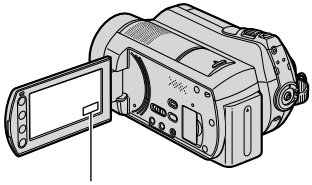
- In a non-gravity situation, the drop sensor is activated. When you record images during activity such as roller-coasting or skydiving, you can set [DROP SENSOR] to [OFF] (OFF) so that the drop sensor is not activated.

Activating functions using the OPTION MENU

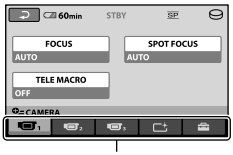
The OPTION MENU appears just like the pop-up window that appears when you right-click the mouse on a computer. Various available functions are displayed.

Using the OPTION MENU

1 While using your camcorder, touch (OPTION) on the screen.



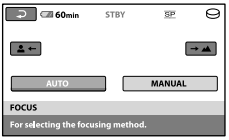
(OPTION)



Tab

2 Touch the desired item.

If you cannot find the desired item, touch another tab to change the page.



If you cannot find the item anywhere, the function does not work under the current situation.

3 Change the setting, then touch OK.

Notes

- The tabs and items that appear on the screen depend on the recording/playback status of your camcorder at the time.
- Some items appear without a tab.
- The OPTION MENU cannot be used during Easy Handycam operation.

Recording items on the OPTION MENU

Items	HOME*	Page
tab		
FOCUS	–	73
SPOT FOCUS	–	73
TELE MACRO	–	73
EXPOSURE	–	74
SPOT METER	–	74
SCENE SELECTION	–	74
WHITE BAL.	–	75
COLOR SLOW SHTR	–	76
SUPER NIGHTSHOT	–	76
tab		
FADER	–	76
D.EFFECT	–	77
PICT.EFFECT	–	77
tab		
REC MODE	○	58
BLT-IN ZOOM MIC	–	77
MICREF LEVEL	–	77
IMAGE SIZE	○	62
SELF-TIMER	–	77
FLASH MODE	○	60
TIMING	–	29
RECORD SOUND	–	29

* Items that are included also in the HOME MENU.

Viewing items on the OPTION MENU

Items	HOME*	Page
tab		
DELETE	○	38
DELETE by date	○	39
DELETE ALL	○	39
tab		
DIVIDE	○	44
ERASE	○	46
ERASE ALL	○	46
MOVE	○	46
-- (A tab depends on the situation)		
ADD	○	45
ADD by date	○	45
PRINT	○	50
SLIDE SHOW	–	34
VOLUME	○	31
DATA CODE	○	64
SLIDE SHOW SET	–	34
ADD	○	45
ADD by date	○	45
-- (No tab)		
COPIES	–	50
DATE/TIME	–	50
SIZE	–	50

* Items that are included also in the HOME MENU.

Functions set in the OPTION MENU

Items you can set only on the OPTION MENU will be described below.

The default settings are marked with ▶.

FOCUS

You can adjust the focus manually. You can select this function also when you want to focus on a certain subject intentionally.

① Touch [MANUAL].
appears.
② Touch (focusing on close subjects)/ (focusing on distant subjects) to sharpen the focus. appears when the focus cannot be adjusted any closer, and appears when the focus cannot be adjusted farther away.
③ Touch [OK].

To adjust the focus automatically, touch [AUTO] → [OK] in step ①.

Notes

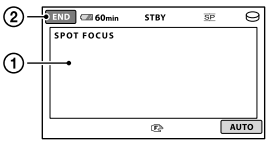
- The minimum possible distance between camcorder and subject while maintaining sharp focus is about 1 cm (about 13/32 in.) for wide angle and about 80 cm (about 2 5/8 feet) for telephoto.

Tips

- It is easier to focus on the subject by moving the power zoom lever towards T (telephoto) to adjust the focus, then towards W (wide angle) to adjust the zoom for recording. When you want to record a subject at close range, move the power zoom lever to W (wide angle), then adjust the focus.
- The focal distance information (the distance at which the subject is focused on, for when it is dark and hard to adjust focus) appears for a few seconds in the following cases: (It will not be displayed correctly if you are using a conversion lens (optional).)
  - When the focus mode is switched from automatic to manual.
  - When you set focus manually.

SPOT FOCUS

You can select and adjust the focal point to aim it at a subject not located at the center of the screen.



① Touch the subject on the screen.
appears.
② Touch [END].

To adjust the focus automatically, touch [AUTO] → [END] in step ①.

Notes

- If you set [SPOT FOCUS], [FOCUS] is automatically set to [MANUAL].

TELE MACRO

This is useful to shoot small subjects, such as flowers or insects. You can blur out backgrounds and the subject stands out clearer.
When you set [TELE MACRO] to [ON] (T), the zoom (p. 27) moves to the top of the T (telephoto) side automatically and allows recording subjects at a close distance, down to about 57 cm (22 1/2 in.).

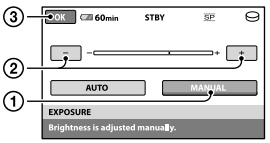
To cancel, touch [OFF], or zoom to wide-angle (W side).

Notes

- When recording a distant subject, focusing may be difficult and can take some time.
- Adjust the focus manually ([FOCUS], p. 73) when it is hard to focus automatically.

EXPOSURE

You can fix the brightness of an image manually. Adjust the brightness when the subject is too bright or too dark.

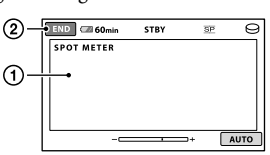


① Touch [MANUAL].
appears.
② Adjust the exposure by touching −/+.
③ Touch OK.

To return the setting to automatic exposure, touch [AUTO] → OK in step ①.

SPOT METER (Flexible spot meter)

You can adjust and fix the exposure to the subject, so that it is recorded in suitable brightness even when there is strong contrast between the subject and the background, such as subjects in the spotlight on stage.



① Touch the point where you want to fix and adjust the exposure on the screen.
appears.
② Touch [END].

To return the setting to automatic exposure, touch [AUTO] → [END] in step ①.

Notes

- If you set [SPOT METER], [EXPOSURE] is automatically set to [MANUAL].

SCENE SELECTION

You can record images effectively in various situations.

▶ AUTO

Select to automatically record images effectively without the [SCENE SELECTION] function.

TWILIGHT* ( )

Select to maintain the darkening atmosphere of the distant surroundings in twilight scenes.

TWILIGHT PORT. ( )

Select to take a subject in the foreground against a night view.

CANDLE ( )

Select to maintain the dim atmosphere of a candlelit scene.

SUNRISE&SUNSET* ( )

Select to reproduce the atmosphere of scenes such as sunsets or sunrises.

FIREWORKS* ( )

Select to take spectacular shots of fireworks.

LANDSCAPE* ( )

Select to shoot distant subjects clearly. This setting also prevents your camcorder from focusing on glass or metal mesh in windows between the camcorder and the subject.

PORTRAIT ( )

Select to bring out the subject such as people or flowers while creating a soft background.

SPOTLIGHT** ( )

Select to prevent people's faces from appearing excessively white when subjects are lit by strong light.

BEACH** ( )

Select to take the vivid blue of the ocean or a lake.

SNOW** ( )

Select to take bright pictures of a white landscape.

* Adjusted to focus on subjects farther away only.

** Adjusted not to focus on subjects a short distance away.

Notes

- If you set [SCENE SELECTION], [WHITE BAL.] setting is canceled.
- Even if you set [TWILIGHT PORT.] while the (Still) lamp is lit, the setting changes to [AUTO] once the (Movie) lamp lights up.

WHITE BAL. (White balance)

You can adjust the color balance to the brightness of the recording environment.

▶ AUTO

The white balance is adjusted automatically.

OUTDOOR ( )

The white balance is adjusted to be appropriate for the following recording conditions:

- Outdoors
- Night views, neon signs and fireworks
- Sunrise or sunset
- Under daylight fluorescent lamps

INDOOR ( )

The white balance is adjusted to be appropriate for the following recording conditions:

- Indoors
- At party scenes or studios where the lighting conditions change quickly
- Under video lamps in a studio, or under sodium lamps or incandescent-like color lamps

ONE PUSH ( )

The white balance will be adjusted according to the ambient light.

① Touch [ONE PUSH].

② Frame a white object such as a piece of paper, to fill the screen under the same lighting conditions as you will shoot the subject.

③ Touch [ ].
flashes quickly. When the white balance has been adjusted and stored in the memory, the indicator stops flashing.

Notes

- Set [WHITE BAL.] to [AUTO] or adjust the color in [ONE PUSH] under white or cool white fluorescent lamps.
- When you select [ONE PUSH], keep framing white object while is flashing quickly.
- flashes slowly if [ONE PUSH] could not be set.
- When [ONE PUSH] was selected, if keeps flashing after touching [OK], set [WHITE BAL.] to [AUTO].
- When you set [WHITE BAL.], [SCENE SELECTION] is automatically set to [AUTO].

Tips

- If you changed the battery pack, or moved your camcorder to or from outdoors when [AUTO] was selected, aim your camcorder at a nearby white object with [AUTO] for about 10 seconds for better color balance adjustment.
- If you change the [SCENE SELECTION] settings or move your camcorder outdoors during white balance setting with [ONE PUSH], you need to repeat the [ONE PUSH] operation.

COLOR SLOW SHTR (Color Slow Shutter)

When you set [COLOR SLOW SHTR] to [ON], you can record an image brighter in color even in dark places.
appears on the screen.

To cancel [COLOR SLOW SHTR], touch [OFF].

Notes

- Adjust the focus manually ([FOCUS], p. 73) when it is hard to focus automatically.
- The shutter speed of your camcorder changes depending on the brightness, which may result in a slowdown of the motion of the image.

SUPER NIGHTSHOT

The image will be recorded at a maximum of 16 times the sensitivity of NightShot recording if you set [SUPER NIGHTSHOT] to [ON] while the NIGHTSHOT switch (p. 28) is also set to ON.
S appears on the screen.

To cancel, touch [OFF].

Notes

- Do not use [SUPER NIGHTSHOT] in bright places. This may cause a malfunction.
- Do not cover the infrared port with your fingers or other objects.
- Remove the conversion lens (optional).
- Adjust the focus manually ([FOCUS], p. 73) when it is hard to focus automatically.
- The shutter speed of your camcorder changes depending on the brightness, which may result in a slowdown of the motion of the image.

FADER

You can record a transition with the following effects adding to the interval between scenes.

① Select the desired effect in [STBY] (to fade in) or [REC] (to fade out) mode, then touch [OK].
② Press START/STOP.
The fader indicator stops flashing and disappears when the fade is complete.

To cancel the fader before starting the operation, touch [OFF] in step ①.
If you press START/STOP, the setting is canceled.

Fading out Fading in

WHITE FADER

BLACK FADER

D.EFFECT (Digital effect)

When you select [OLD MOVIE], appears and you can add an old movie effect to images.
To cancel [D.EFFECT], touch [OFF].

PICT.EFFECT (Picture effect)

You can add special effects to an image during recording. appears.

▶ **OFF**
Does not use [PICT.EFFECT] function.

SEPIA
Images appear in sepia.

B&W
Images appear in black and white.

PASTEL

Images appear as a pale pastel drawing.

BLT-IN ZOOM MIC (Built-in zoom microphone)

When you set [BLT-IN ZOOM MIC] to [ON] (), you can record a movie with directional sound as you move the power zoom lever or press the zoom buttons on the LCD frame (The default setting is [OFF]).

MICREF LEVEL (Microphone reference level)

You can select the microphone level for recording sound.
Select [LOW] when you want to record exciting and powerful sound in a concert hall, etc.

▶ **NORMAL**
Records various surround sounds, converting them into the certain level.

LOW ( )
Records surround sound faithfully. This setting is not suitable for recording conversations.

SELF-TIMER

When you set this to [ON], appears. Press PHOTO to start the count down, a still image is recorded after about 10 seconds. To cancel the count down, touch [RESET].
To cancel the self-timer, select [OFF].

Tips

- You can also operate by pressing PHOTO on the Remote Commander (p. 103).

Troubleshooting

If you run into any problems using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer.

- Overall operations/Easy Handycam operation/Remote Commander 78
- Batteries/Power sources..... 79
- LCD screen 80
- “Memory Stick PRO Duo” 80
- Recording..... 80
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- Playing back images stored on a “Memory Stick PRO Duo” on other devices 83
- Editing images on your camcorder..... 83
- Dubbing/Connecting to other devices 84
- Functions that cannot be used simultaneously 84

Notes before sending your camcorder for repair

- Your camcorder may require initializing or changing the current hard disk of the camcorder, depending on the problem. In this case, the data stored on the hard disk will be deleted. Be sure to save the data on the hard disk (p. 37) on other media (backup) before sending your camcorder for repair. We will not compensate you for any loss of hard disk data.
- During repair, we may check a minimum amount of data stored on the hard disk in order to investigate the problem. However, your Sony dealer will neither copy nor retain your data.

Overall operations/Easy Handycam operation/Remote Commander

The power does not turn on.

- Attach a charged battery pack to the camcorder (p. 13).
- Connect the plug of the AC Adaptor to the wall outlet (wall socket) (p. 13).
- Set the camcorder onto the Handycam Station securely (p. 13).

The camcorder does not operate even when the power is set to on.

- It takes a few seconds for your camcorder to be ready to shoot after the power is turned on. This is not a malfunction.
- Disconnect the AC Adaptor from the wall outlet (wall socket) or remove the battery pack, then reconnect it after about 1 minute. If the functions still do not work, press RESET (p. 101) using a sharp-pointed object. (If you press RESET, all settings, including the clock setting, are reset.)
- The temperature of your camcorder is extremely high. Turn off your camcorder and leave it for a while in a cool place.
- The temperature of your camcorder is extremely low. Turn off the camcorder and take it to a warm place. Leave the camcorder there for a while, then turn on the camcorder.

Buttons do not work.

- During Easy Handycam operation, the following buttons/functions are not available.
  - (back light) button (p. 28)
  - Playback zoom (p. 33)
  - To turn on and off the LCD backlight (Pressing and holding DISP/BATT INFO for a few seconds) (p. 19)

The (OPTION) button is not displayed.

- The OPTION MENU cannot be used during Easy Handycam operation.

The menu settings have changed automatically.

- During Easy Handycam operation, nearly all the menu items will be automatically set to the default settings.
- During Easy Handycam operation, some menu items are fixed as follows.
  - [REC MODE] : [SP]
  - [DATA CODE] : [DATE/TIME]

- The following menu items return to the default settings when you set the POWER switch to OFF (CHG) for more than 12 hours.
  - [FOCUS]
  - [SPOT FOCUS]
  - [EXPOSURE]
  - [SPOT METER]
  - [SCENE SELECTION]
  - [WHITE BAL.]
  - [MICREF LEVEL]
  - [BLT-IN ZOOM MIC]
  - [DROP SENSOR]
  - [COLOR SLOW SHTR]
  - [SUPER NIGHTSHOT]

Even if you press EASY, menu settings do not switch to their defaults automatically.

- During Easy Handycam operation, settings for the following menu items are maintained the ones before Easy Handycam operation.
  - [FILE NO.]
  - [VOLUME]
  - [TV TYPE]
  - [DISPLAY]
  - [BEEP]
  - [INDEX SET]
  - [CLOCK SET]
  - [AREA SET]
  - [DST SET]/[SUMMERTIME]
  - [WIDE SELECT]
  - [IMAGE SIZE]
  - [DEMO MODE]
  - [TIMING]
  - [LANGUAGE SET]
  - [RECORD SOUND]
  - [MOVIE MEDIA SET]
  - [PHOTO MEDIA SET]
  - [FLASH MODE]
  - [AUDIO MODE]
  - [CONVERSION LENS]

Your camcorder gets warm.

- This is because the power has been turned on for a long time. This is not a malfunction.

The supplied Remote Commander does not function.

- Set [REMOTE CTRL] to [ON] (p. 69).
- Insert a battery into the battery holder with the +/– polarities correctly matching the +/– marks (p. 103).
- Remove any obstructions between the Remote Commander and the remote sensor.
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.

Another DVD device malfunctions when you use the supplied Remote Commander.

- Select a commander mode other than DVD 2 for your DVD device, or cover the sensor of your DVD device with black paper.

Batteries/Power sources

The power abruptly turns off.

- When approximately 5 minutes have elapsed while you do not operate your camcorder, the camcorder is automatically turned off (A.SHUT OFF). Change the setting of [A.SHUT OFF] (p. 69), or turn on the power again, or use the AC Adaptor.
- The power turns off automatically if the time you set in [QUICK ON STBY] passes during sleep mode. In this case, turn on the power again.
- Charge the battery pack (p. 13).

The ϟ/CHG (charge) lamp does not light while the battery pack is being charged.

- Turn the POWER switch to OFF (CHG) (p. 13).

- Attach the battery pack to the camcorder correctly (p. 13).
- Connect the power cord (mains lead) to the wall outlet (wall socket) properly.
- The battery charge is completed (p. 13).
- Set the camcorder onto the Handycam Station securely (p. 13).

The ϟ/CHG (charge) lamp flashes while the battery pack is being charged.

- Attach the battery pack to the camcorder correctly (p. 13). If the problem persists, disconnect the AC Adaptor from the wall outlet (wall socket) and contact your Sony dealer. The battery pack may be damaged.

The remaining battery time indicator does not indicate the correct time.

- The temperature of the environment is too high or too low. This is not a malfunction.
- The battery pack has not been charged enough. Fully charge the battery again. If the problem persists, replace the battery pack with a new one (p. 13).
- The indicated time may not be correct depending on the environment of use.

The battery pack is quickly discharged.

- The temperature of the environment is too high or low. This is not a malfunction.
- The battery pack has not been charged enough. Fully charge the battery again. If the problem persists, replace the battery pack with a new one (p. 13).

LCD screen

Menu items are grayed out.

- You cannot select grayed items in the current recording/playback situation.
- There are some functions you cannot activate simultaneously (p. 84).

The buttons do not appear on the touch panel.

- Touch the LCD screen lightly.
- Press DISP/BATT INFO on your camcorder (or DISPLAY on the Remote Commander) (p. 19).

The buttons on the touch panel do not work correctly or do not work at all.

- Adjust the touch panel ([CALIBRATION]) (p. 96).

"Memory Stick PRO Duo"

You cannot operate functions using the "Memory Stick PRO Duo."

- If you use a "Memory Stick PRO Duo" formatted on a computer, format it again on your camcorder (p. 53).

You cannot delete images stored on or format the "Memory Stick PRO Duo."

- The maximum number of images that you can delete on the index screen at one time is 100.
- You cannot delete images that have write-protection set by another device.

The data file name is not indicated correctly or flashes.

- The file is damaged.
- The file format is not supported by your camcorder (p. 93). Use the supported file format.

Recording

Refer also to "Memory Stick PRO Duo" (p. 80).

Pressing START/STOP or PHOTO does not record images.

- The playback screen is displayed. Set your camcorder to recording standby (p. 26).

- The recording media is full. Delete unnecessary images (p. 38).
- Total number of movies or still images exceeds the recordable capacity of the media (p. 62, 92). Delete unnecessary images (p. 38).
- While [DROP SENSOR] (p. 69) is activated, you cannot record images.
- You cannot record images in sleep mode. Cancel QUICK ON (p. 27).
- Your camcorder is recording the image you have just shot onto the media. You cannot make a new recording during this period.
- The temperature of your camcorder is extremely high. Turn off your camcorder and leave it for a while in a cool place.
- The temperature of your camcorder is extremely low. Turn off the camcorder and take it to a warm place. Leave the camcorder there for a while, then turn on the camcorder.

You cannot record a still image.

- You cannot record a still image together with:
  - [SMTH SLW REC]
  - [FADER]
  - [D.EFFECT]
  - [PICT.EFFECT]

The ACCESS lamp remains lit even when you stop recording.

- Your camcorder is recording the image you have just shot on the media.

The recording angle looks different.

- Recording angle may vary depending on the condition of the camcorder. This is not a malfunction.

The flash does not work.

- You cannot use the flash when you capture still images while recording a movie.
- Even if auto flash or (Auto redeye reduction) is selected, you cannot use the flash with:
  - NightShot
  - [SUPER NIGHTSHOT]
  - [TWILIGHT], [CANDLE], [SUNRISE&SUNSET], [FIREWORKS], [LANDSCAPE], [SPOTLIGHT], [BEACH] or [SNOW] in [SCENE SELECTION]
  - [MANUAL] in [EXPOSURE]
  - [SPOT METER]

The actual recording time for movie is less than the expected approximate recording time of the media.

- Depending on the recording conditions, the time available for recording may be shorter, for example when recording a fast moving object, etc (p. 58).

The recording stops.

- The temperature of your camcorder is extremely high. Turn off your camcorder and leave it for a while in a cool place.
- The temperature of your camcorder is extremely low. Turn off the camcorder and take it to a warm place. Leave the camcorder there for a while, then turn on the camcorder.
- If vibrations occur continuously, recording may stop.

There is a time difference between the point where you press START/STOP and the point that movie recording starts/stops.

- On your camcorder, there may be a slight time difference between the point where you press START/STOP and the actual point that movie recording starts/stops. This is not a malfunction.

The auto focus does not function.

- Set [FOCUS] to [AUTO] (p. 73).
- The recording conditions are not suitable for auto focus. Adjust the focus manually (p. 73).

[STEADYSHOT] does not function.

- Set [STEADYSHOT] to [ON] (p. 59).
- [STEADYSHOT] may not be able to compensate for excessive vibrations.

The subjects passing by in front of the lens very fast appear crooked.

- This is called the focal plane phenomenon. This is not a malfunction. Because of the way the image device (CMOS sensor) reads out image signals, the subjects passing by in front of the lens rapidly might appear crooked depending on the recording conditions.

Tiny spots in white, red, blue, or green appear on the screen.

- The spots appear when you are recording with [SUPER NIGHTSHOT] or [COLOR SLOW SHTR]. This is not a malfunction.

The color of the image is not correctly displayed.

- Set the NIGHTSHOT switch to OFF (p. 28).

The screen image is bright, and the subject does not appear on the screen.

- Set the NIGHTSHOT switch to OFF (p. 28).

The screen image is dark, and the subject does not appear on the screen.

- Press and hold DISP/BATT INFO for a few seconds to turn on the backlight (p. 19).

Horizontal stripes appear on the image.

- This occurs when recording images under a fluorescent lamp, sodium lamp, or mercury lamp. This is not a malfunction.

Black bands appear when you record a TV screen or computer screen.

- Set [STEADYSHOT] to [OFF] (p. 59).

[SUPER NIGHTSHOT] cannot be operated.

- Set the NIGHTSHOT switch to ON.

[COLOR SLOW SHTR] does not operate correctly.

- [COLOR SLOW SHTR] may not operate correctly in total darkness. Use NightShot or [SUPER NIGHTSHOT].

You cannot adjust [LCD BL LEVEL].

- You cannot adjust [LCD BL LEVEL] when:
  - The LCD panel is closed on your camcorder with the LCD screen facing out.
  - The power is supplied from the AC Adaptor.

Playing back

Images cannot be played back.

- Set the media of the image you want to play back, by touching (HOME) → (MANAGE MEDIA) → [MOVIE MEDIA SET]/[PHOTO MEDIA SET] (p. 20).

Still images cannot be played back.

- Still images cannot be played back if you have modified files or folders, or have edited the data on a computer. (The file name flashes in that case.) This is not a malfunction (p. 94).
- Still images recorded by other devices may not be played back, or may not appear in the actual size. This is not a malfunction (p. 94).

"[?]" is indicated on an image in the [VISUAL INDEX] screen.

- Loading of the data may have failed. It may be indicated correctly when you turn off the power and then turn it on again, or repeat removing and inserting the "Memory Stick PRO Duo" a couple of times.
- This may appear on still images recorded by other devices, edited on a computer, etc.
- The AC Adapter or the battery pack may have been removed from the camcorder while the ACCESS lamp was flashing just after recording finished. As a result, the image data may have been damaged and [?] may appear.

"[image]" is indicated on an image in the [VISUAL INDEX] screen.

- Execute [REPAIR IMG.DB F.] (p. 55). If it still appears, delete the image marked with [image] (p. 38).

No sound or only a quiet sound is heard during playback.

- Turn up the volume (p. 31).
- Sound is not output when the LCD panel is closed. Open the LCD panel.
- When you record sound with [MICREF LEVEL] (p. 77) set to [LOW], the recorded sound may be difficult to hear.
- In case of [SMTH SLW REC], you cannot record sounds during shooting (about 3 seconds).

Left and right sound will be heard unbalanced when playing back on computers or other devices.

- This happens when sound recorded in 5.1ch surround is converted to 2ch (normal stereo sound) by a computer or other device (p. 27). This is not a malfunction.
- Change the sound conversion type (downmix type) when playing back on 2ch stereo devices. Refer to the instruction manual supplied with your playback device for details.
- Change the sound to 2ch when creating a disc using the supplied software "Picture Motion Browser."
- Record sound with [AUDIO MODE] set to [2ch STEREO] (p. 58).

Playing back images stored on a "Memory Stick PRO Duo" on other devices

Images cannot be played back or the "Memory Stick PRO Duo" is not recognized.

- The device may not support a "Memory Stick PRO Duo."

Editing images on your camcorder

Unable to edit.

- There are no images recorded.
- Unable to edit because of the condition of the image.

Movies cannot be added in the Playlist.

- The media is full, or the added movies exceed 99. Erase unnecessary movies (p. 46).
- You cannot add still images in the Playlist.

A movie cannot be divided.

- A movie that is too short cannot be divided.
- A movie protected on another device cannot be divided.

A still image cannot be captured from a movie.

- The media where you want to save still images is full.

Dubbing/Connecting to other devices

You cannot hear the sound.

- The audio will not be output when you connect a device via the S VIDEO plug only. Connect the white and red plugs of the A/V connecting cable, too (p. 35).

The aspect ratio of the playback is not correct when connecting your camcorder to the TV.

- Set [TV TYPE] according to your TV (p. 35).

You cannot dub correctly using the A/V connecting cable.

- The A/V connecting cable is not connected properly. Make sure that the A/V connecting cable is connected to the proper jack, i.e. to the input jack of another device for dubbing an image from your camcorder (p. 47).

Functions that cannot be used simultaneously

The following list shows examples of unworkable combinations of functions and menu items.

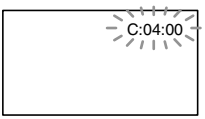
Cannot use	Because of following settings
Back light	[FIREWORKS] in [SCENE SELECTION], [MANUAL] in [EXPOSURE], [SPOT METER]
[WIDE SELECT]	[OLD MOVIE]
[AUTO SLW SHUTTR]	[SUPER NIGHTSHOT], [COLOR SLOW SHTR], [D.EFFECT], [SCENE SELECTION], [SMTH SLW REC], [FADER]
[SPOT FOCUS]	[SCENE SELECTION]
[TELE MACRO]	[SCENE SELECTION]
[EXPOSURE]	NightShot, [SUPER NIGHTSHOT]
[SPOT METER]	NightShot, [SUPER NIGHTSHOT]
[SCENE SELECTION]	NightShot, [SUPER NIGHTSHOT], [COLOR SLOW SHTR], [OLD MOVIE], [TELE MACRO], [FADER]
[WHITE BAL.]	NightShot, [SUPER NIGHTSHOT]
[ONE PUSH] in [WHITE BAL.]	[SMTH SLW REC]
[COLOR SLOW SHTR]	NightShot, [SUPER NIGHTSHOT], [D.EFFECT], [SCENE SELECTION], [FADER]
[SUPER NIGHTSHOT]	[D.EFFECT], [FADER]
[FADER]	[D.EFFECT], [SUPER NIGHTSHOT], [COLOR SLOW SHTR], [CANDLE]/ [FIREWORKS] in [SCENE SELECTION]
[D.EFFECT]	[SUPER NIGHTSHOT], [COLOR SLOW SHTR], [FADER]
[OLD MOVIE]	[SCENE SELECTION], [PICT.EFFECT]
[PICT.EFFECT]	[OLD MOVIE]

Cannot use	Because of following settings
[FACE DETECTION]	NightShot, [SMTH SLW REC], [DIGITAL ZOOM], [FOCUS], [SPOT FOCUS], [EXPOSURE], [SPOT METER], [TWILIGHT], [TWILIGHT PORT.], [CANDLE], [SUNRISE&SUNSET], [FIREWORKS], [LANDSCAPE], [SPOTLIGHT], [BEACH], [SNOW], [WHITE BAL.], [COLOR SLOW SHTR], [SUPER NIGHTSHOT], [D.EFFECT], [PICT. EFFECT]
[MICREF LEVEL]	[BLT-IN ZOOM MIC]

Warning indicators and messages

Self-diagnosis display/Warning indicators

If indicators appear on the LCD screen, check the following.
If the problem persists even after you have tried a couple of times, contact your Sony dealer or local authorized Sony service facility.



C:(or E:) □□:□□ (Self-diagnosis display)

C:04:□□

- The battery pack is not an "InfoLITHIUM" battery pack (H series). Use an "InfoLITHIUM" battery pack (H series) (p. 94).
- Connect the DC plug of the AC Adaptor to the DC IN jack of the Handycam Station or your camcorder securely (p. 13).

C:13:□□ / C:32:□□

- Remove the power source. Reconnect it and operate your camcorder again.
- Turn on your camcorder again.

E:20:□□ / E:31:□□ / E:61:□□ / E:62:□□ / E:91:□□ / E:94:□□

- A malfunction that you cannot service has occurred. Contact your Sony dealer or local authorized Sony service facility. Inform them of the 5-digit code, which starts from "E."

101-0001 (Warning indicator pertaining to files)

Slow flashing

- The file is damaged.
- The file is unreadable.

(Warning on the hard disk of the camcorder)*

Fast flashing

- An error may have occurred with the hard disk drive in your camcorder.

(Warning on the hard disk of the camcorder)*

Fast flashing

- The hard disk of the camcorder is fully recorded.
- An error may have occurred with the hard disk drive in your camcorder.

(Battery level warning)

Slow flashing

- The battery pack is nearly used up.
- Depending on the operating environment or battery conditions, may flash, even if there are approximately 20 minutes remaining.

(High temperature warning)

Slow flashing

- The temperature of your camcorder is getting higher. Turn off your camcorder and leave it for a while in a cool place.

Fast flashing*

- The temperature of your camcorder is extremely high. Turn off your camcorder and leave it for a while in a cool place.

(Low temperature warning)*

Fast flashing

- The temperature of your camcorder is extremely low. Make the camcorder warm.

(Warning indicator pertaining to "Memory Stick PRO Duo")

Slow flashing

- Free space for recording images are running out. For the type of "Memory Stick" you can use with your camcorder, see page 2.
- No "Memory Stick PRO Duo" is inserted (p. 21).

Fast flashing

- There are not enough free space for recording images. Delete unnecessary images, or format the "Memory Stick PRO Duo" after storing the images on other media (p. 37, 38, 53).
- The Image Database File is damaged (p. 55).

(Warning indicators pertaining to "Memory Stick PRO Duo" formatting)*

- The "Memory Stick PRO Duo" is damaged.
- The "Memory Stick PRO Duo" is not formatted correctly (p. 53, 93).

(Warning indicator pertaining to incompatible "Memory Stick Duo")*

- An incompatible "Memory Stick Duo" is inserted (p. 93).

(Warning indicator pertaining to the write-protect of the "Memory Stick PRO Duo")*

- Access to the "Memory Stick PRO Duo" was restricted on another device.

(Warning indicator pertaining to the flash)

Fast flashing

- There is something wrong with the flash.

(Warning indicator pertaining to camera-shake warning)

- The amount of light is not sufficient, so camera-shake easily occurs. Use the flash.
- The camcorder is unsteady, so camera-shake easily occurs. Hold the camcorder steady with both hands and record the image. However, note that the camera-shake warning indicator does not disappear.

(Warning indicator pertaining to drop sensor)

- The drop sensor function (p. 69) is activated, and has detected that the camcorder has been dropped. Therefore, the camcorder is taking steps to protect the hard disk. Recording/playback may be disabled as a result.
- The drop sensor function does not guarantee the protection of the hard disk under all possible situations. Use the camcorder under stable conditions.

(Warning indicator pertaining to still image recording)

- The media is full.
- Still images cannot be recorded during processing. Wait for a while, then record.

* You hear a melody when the warning indicators appear on the screen (p. 66).

Description of warning messages

If messages appear on the screen, follow the instructions.

■ Media

HDD format error.

- The hard disk of the camcorder is set differently from the default format. Performing [MEDIA FORMAT] (p. 53) may enable you to use your camcorder. This will delete all data in the hard disk.

Data error.

- An error occurred during reading or writing the hard disk of the camcorder. This may occur when constant shock is applied to the camcorder.

The Image Database File is damaged. Do you want to create a new file?

- The image database file is damaged. When you touch [YES], a new image database file is created. The old recorded images on the media cannot be played back (Image files are not damaged). If you execute [REPAIR IMG.DB F.] after creating new information, playing back the old recorded images may become possible. If it does not work, copy the image using the supplied software.

Buffer overflow

- You cannot record because the drop sensor senses a drop of the camcorder repeatedly. If you may be at risk of dropping the camcorder constantly, set [DROP SENSOR] to [OFF], and you may be able to record the image again (p. 69).

Recovering data.

- Your camcorder tries to recover data automatically if the data writing was not performed properly.

Cannot recover data.

- Writing data onto the media of the camcorder has failed. Attempts were made to recover the data, but they were unsuccessful.

Reinsert the Memory Stick.

- Reinsert the "Memory Stick PRO Duo" a few times. If even then the indicator flashes, the "Memory Stick PRO Duo" could be damaged. Try with another "Memory Stick PRO Duo."

This Memory Stick is not formatted correctly.

- Check the format, then format the "Memory Stick PRO Duo" with your camcorder if necessary (p. 53).

Memory Stick folders are full.

- You cannot create folders exceeding 999MSDCF. You cannot create or delete created folders using your camcorder.
- You will have to format the "Memory Stick PRO Duo" (p. 53), or delete them using your computer.

Cannot save still picture.

- When using the Dual Rec function, do not remove the "Memory Stick PRO Duo" from the camcorder until movie recording is finished and the still images are stored on it (p. 28).

This Memory Stick may not be able to record or play movies.

- Use a "Memory Stick" recommended for your camcorder.

This Memory Stick may not be able to record or play images correctly.

- The function of the "Memory Stick PRO Duo" has some trouble. Reinsert the "Memory Stick PRO Duo."

Do not eject the Memory Stick during writing.

- Reinsert the "Memory Stick PRO Duo," and follow the instructions on the LCD screen.

■ PictBridge compliant printer

Not connected to PictBridge compatible printer.

- Turn off the printer and then on again, then remove the USB cable (supplied) and reconnect it.

Cannot print. Check the printer.

- Turn off the printer and then on again, then remove the USB cable (supplied) and reconnect it.

■ Other

No further selection is possible.

- You can select only 100 images at one time for:
  - dubbing movies
  - copying still images
  - deleting images
  - printing still images

Data protected.

- You tried to delete data protected on another device. Release the protection of the data on the device used to protect the data.

Using your camcorder abroad

Power supply

You can use your camcorder in any country/region using the AC Adaptor supplied with your camcorder within the AC 100 V to 240 V, 50/60 Hz range. Use a commercially available AC plug adaptor [a], if necessary, depending on the design of the wall outlet [b].

On TV color systems

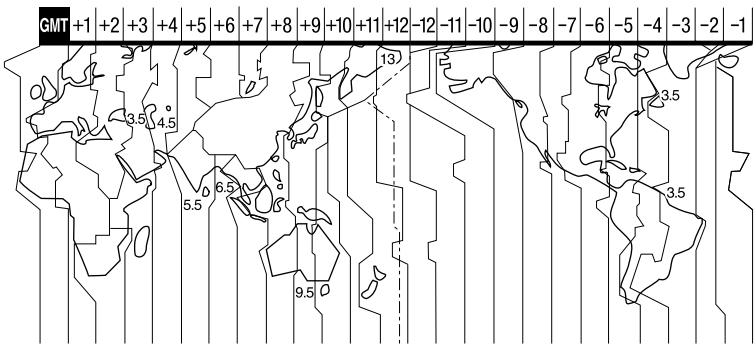
Your camcorder is an NTSC-system-based camcorder. If you want to view the playback image on a TV, it must be an NTSC-system-based TV with an AUDIO/VIDEO input jack.

System	Used in
NTSC	Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Guyana, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.
PAL	Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Holland, Hong Kong, Hungary, Italy, Kuwait, Malaysia, New Zealand, Norway, Poland, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, United Kingdom, etc.
PAL-M	Brazil
PAL-N	Argentina, Paraguay, Uruguay.
SECAM	Bulgaria, France, Guiana, Iran, Iraq, Monaco, Russia, Ukraine, etc.

Setting to the local time

You can easily set the clock to the local time by setting a time difference when using your camcorder abroad. Touch (HOME) → (SETTINGS) → [CLOCK/LANG] → [AREA SET] and [DST SET] or [SUMMERTIME] (p. 17).

World time difference

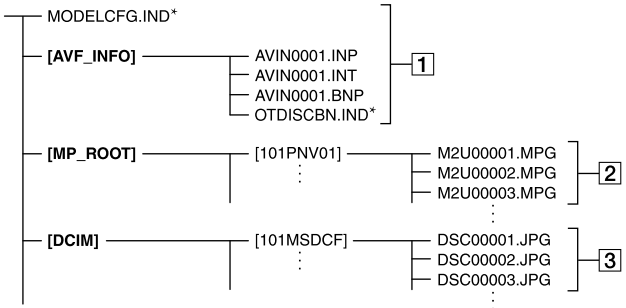


Time-zone differences	Area setting
GMT	Lisbon, London
+01:00	Berlin, Paris
+02:00	Helsinki, Cairo, Istanbul
+03:00	Moscow, Nairobi
+03:30	Tehran
+04:00	Abu Dhabi, Baku
+04:30	Kabul
+05:00	Karachi, Islamabad
+05:30	Calcutta, New Delhi
+06:00	Almaty, Dhaka
+06:30	Rangoon
+07:00	Bangkok, Jakarta
+08:00	Hong Kong, Singapore, Beijing
+09:00	Seoul, Tokyo
+09:30	Adelaide, Darwin
+10:00	Melbourne, Sydney

Time-zone differences	Area setting
+11:00	Solomon Is
+12:00	Fiji, Wellington
−12:00	Eniwetok, Kwajalein
−11:00	Samoa
−10:00	Hawaii
−09:00	Alaska
−08:00	Los Angeles, Tijuana
−07:00	Denver, Arizona
−06:00	Chicago, Mexico City
−05:00	New York, Bogota
−04:00	Santiago
−03:30	St.John's
−03:00	Brasilia, Montevideo
−02:00	Fernando de Noronha
−01:00	Azores, Cape Verde Is.

File/folder structure on the camcorder hard disk and "Memory Stick PRO Duo"

The file/folder structure is shown below. You do not usually need to acknowledge the file/folder structure, when recording/playing back images on the camcorder. To enjoy still images or movies by connecting to a computer, see "PMB Guide," then use the supplied application.



* Only for hard disk

1 Image management files
When you delete the files, you cannot record/play back the images correctly. The files are defaulted as hidden files and not usually displayed.

2 Movie files (MPEG2 files)
The extension of the files is ".MPG". The maximum size is 2 GB. When the capacity of a file exceeds 2 GB, the file becomes divided.
The file numbers go up automatically. When the file number exceeds 9,999, another folder is created to record new movie files.
The folder name goes up: [101PNV01] → [102PNV01]

3 Still image files (JPEG files)
The extension of the files is ".JPG". The file numbers go up automatically. When the capacity of a file number exceeds 9,999, another folder is created to store new image files.
The folder name goes up: [101MSDCF] → [102MSDCF]

- By touching (HOME) → (OTHERS) [USB CONNECT] → [USB CONNECT]/[USB CONNECT], you can access the media from the computer through USB connection.
- Do not modify the files or folders on the camcorder through the computer without using the supplied computer application. The image files may be destroyed or may not be played back.
- Operation is not guaranteed, if you perform the above operation without using the supplied computer application.
- Do not format the media of the camcorder using the computer. The camcorder may not operate correctly.
- Do not copy the files onto the media of the camcorder from the computer. Operation is not guaranteed.
- When the folder number shows 999 and file number exceeds 9,999, recording may not be possible. In this case, perform [MEDIA FORMAT] (p. 53).

About the "Memory Stick"

A "Memory Stick" is a compact, portable IC recording medium with a large data capacity.
We do not guarantee the operation of all types of "Memory Stick" on your camcorder. (See the list below for more details.)

Types of "Memory Stick"	Recording/ Playback
"Memory Stick Duo" (without MagicGate)	–
"Memory Stick PRO Duo"	○
"Memory Stick PRO-HG Duo"	○*

* This product does not support 8-bit parallel data transfer but it supports 4-bit parallel data transfer the same as with "Memory Stick PRO Duo."

- This product cannot record or play data that uses "MagicGate" technology. "MagicGate" is a copyright protection technology that records and transfers the contents in an encrypted format.
- This product is compatible with "Memory Stick Micro" ("M2"). "M2" is the abbreviation for the "Memory Stick Micro."
- A "Memory Stick PRO Duo" formatted by a computer (Windows OS/Mac OS) does not have guaranteed compatibility with your camcorder.
- Data read/write speed may vary depending on the combination of the "Memory Stick PRO Duo" and "Memory Stick" compliant product you use.
- Damaged or lost image data will not be compensated for, and may occur in the following cases:
  - If you eject the "Memory Stick PRO Duo," turn the power off on your camcorder, or remove the battery pack for replacement while your camcorder is reading or writing image files on the "Memory Stick PRO Duo" (while the ACCESS lamp is lit or flashing)
  - If you use the "Memory Stick PRO Duo" near magnets or magnetic fields
- It is recommended you make a back-up of important data on the hard disk of a computer.
- Be careful not to apply excessive force when writing on a memo area on a "Memory Stick PRO Duo."
- Do not attach a label or the like on a "Memory Stick PRO Duo" or a Memory Stick Duo adaptor.
- When you carry or store a "Memory Stick PRO Duo," put it in its case.
- Do not touch, or allow metallic objects to come into contact with the terminals.
- Do not bend, drop or apply strong force to the "Memory Stick PRO Duo."
- Do not disassemble or modify the "Memory Stick PRO Duo."
- Do not let the "Memory Stick PRO Duo" get wet.
- Be careful to keep "Memory Stick PRO Duo" media out of the reach of small children. There is danger that a child might swallow it.
- Do not insert anything other than a "Memory Stick PRO Duo" into the Memory Stick Duo slot. Doing so may cause a malfunction.
- Do not use or keep the "Memory Stick PRO Duo" in the following locations.
  - Places subject to extremely high temperature, such as a car parked outside in the summer
  - Places under direct sunlight
  - Places with extremely high humidity or subject to corrosive gases

On the Memory Stick Duo adaptor

- When using a "Memory Stick PRO Duo" with a "Memory Stick" compliant device, be sure to insert the "Memory Stick PRO Duo" into a Memory Stick Duo adaptor.
- When inserting a "Memory Stick PRO Duo" into a Memory Stick Duo adaptor, make sure the "Memory Stick PRO Duo" is inserted facing in the correct direction, then insert it all the way in. If you force the "Memory Stick PRO Duo" into the Memory Stick Duo adaptor in the wrong direction or insert it incompletely, it may cause a malfunction.
- Do not insert a Memory Stick Duo adaptor without a "Memory Stick PRO Duo" attached. Doing so may result in malfunctions of the unit.

On a "Memory Stick PRO Duo"

- The maximum memory capacity of a "Memory Stick PRO Duo" that can be used on your camcorder is 8 GB.

Notes on using "Memory Stick Micro"

- To use a "Memory Stick Micro" with your camcorder, you need a Duo-sized M2 Adaptor. Insert the "Memory Stick Micro" into the Duo-sized M2 Adaptor, and then insert the adaptor into the Memory Stick Duo slot. If you insert a "Memory Stick Micro" into your camcorder without using a Duo-sized M2 Adaptor, you might not be able to remove it from your camcorder.
- Do not leave the "Memory Stick Micro" within the reach of small children. They might accidentally swallow it.

On image data compatibility

- Image data files recorded on a "Memory Stick PRO Duo" by your camcorder conform to the "Design rule for Camera File system" universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association).
- On your camcorder, you cannot play back still images recorded on other devices (DCR-TRV900 or DSC-D700/D770) that do not conform to the universal standard. (These models are not sold in some regions.)
- If you cannot use a "Memory Stick PRO Duo" that has been used with another device, format it with your camcorder (p. 53). Note that formatting erases all information on the "Memory Stick PRO Duo."
- You may not be able to play back images with your camcorder:
  - When playing back image data modified on your computer
  - When playing back image data recorded with other devices

About the "InfoLITHIUM" battery pack

Your camcorder operates only with an "InfoLITHIUM" battery pack (H series). "InfoLITHIUM" H series battery packs have the InfoLITHIUM H mark.

What is an "InfoLITHIUM" battery pack?

An "InfoLITHIUM" battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between your camcorder and an optional AC Adaptor/charger.
The "InfoLITHIUM" battery pack calculates the power consumption according to the operating conditions of your camcorder, and displays the remaining battery time in minutes.

To charge the battery pack

- Be sure to charge the battery pack before you start using your camcorder.
- We recommend charging the battery pack in an ambient temperature of between 10 °C to 30 °C (50 °F to 86 °F) until the ϟ/CHG (charge) lamp turns off. If you charge the battery pack outside of this temperature range, you may not be able to charge it efficiently.
- After charging is complete, disconnect the cable from the DC IN jack on the Handycam Station or your camcorder, then remove the battery pack.

To use the battery pack effectively

- Battery pack performance decreases when the surrounding temperature is 10 °C (50 °F) or below, and the length of time you can use the battery pack becomes shorter. In that case, do one of the following to use the battery pack for a longer time.
  - Put the battery pack in a pocket to warm it up, and insert it in your camcorder right before you start taking shots
  - Use a large capacity battery pack: NP-FH70/FH100 (optional)
- Frequent use of the LCD screen or a frequent playback, fast forward or rewind operation wears out the battery pack faster.
  We recommend using a large capacity battery pack: NP-FH70/FH100 (optional).
- Be sure to set the POWER switch to OFF (CHG) when not recording or playing back on your camcorder. The battery pack is also consumed when your camcorder is in recording standby or playback pause.

- Have spare battery packs ready for two or three times the expected recording time, and make trial recordings before making the actual recording.
- Do not expose the battery pack to water. The battery pack is not water resistant.

About the remaining battery time indicator

- When the power goes off even though the remaining battery time indicator indicates that the battery pack has enough power to operate, charge the battery pack fully again. Remaining battery time will be indicated correctly. Note, however, that the battery indication will not be restored if it is used in high temperatures for a long time, or if left in a fully charged state, or when the battery pack is frequently used. Use the remaining battery time indication as a rough guide only.
- The mark that indicates low battery flashes even if there are still approximately 20 minutes of battery time remaining, depending on the operating conditions or ambient temperature.

About storage of the battery pack

- If the battery pack is not used for a long time, fully charge the battery pack and use it up on your camcorder once a year to maintain proper function. To store the battery pack, remove it from your camcorder and put it in a dry, cool place.
- To discharge the battery pack on your camcorder completely, touch (HOME) → (SETTINGS) → [GENERAL SET] → [A.SHUT OFF] → [NEVER] and leave your camcorder in recording standby until the power goes off (p. 69).

About battery life

- Battery capacity decreases over time and through repeated use. If decreased usage time between charges becomes significant, it is probably time to replace it with a new one.
- Each battery's life is governed by storage, operating and environmental conditions.

About handling of your camcorder

On use and care

- Do not use or store the camcorder and accessories in the following locations:
  - Anywhere extremely hot, cold or humid. Never leave them exposed to temperatures above 60°C (140 °F), such as under direct sunlight, near heaters or in a car parked in the sun. They may malfunction or become deformed.
  - Near strong magnetic fields or mechanical vibration. The camcorder may malfunction.
  - Near strong radio waves or radiation. The camcorder may not be able to record properly.
  - Near AM receivers and video equipment. Noise may occur.
  - On a sandy beach or anywhere dusty. If sand or dust gets in your camcorder, it may malfunction. Sometimes this malfunction cannot be repaired.
  - Near windows or outdoors, where the LCD screen or the lens may be exposed to direct sunlight. This damages the LCD screen.
- Operate your camcorder on DC 6.8 V/7.2 V (battery pack) or DC 8.4 V (AC Adaptor).
- For DC or AC operation, use the accessories recommended in these operating instructions.
- Do not let your camcorder get wet, for example, from rain or sea water. If your camcorder gets wet, it may malfunction. Sometimes this malfunction cannot be repaired.
- If any solid object or liquid gets inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling, disassembling, modifying, physical shock, or impact such as hammering, dropping or stepping on the product. Be particularly careful of the lens.
- Keep the POWER switch setting to OFF (CHG) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- When disconnecting the power cord (mains lead), pull it by the plug and not the cord.
- Do not damage the power cord (mains lead) such as by placing anything heavy on it.
- Keep metal contacts clean.

- Keep the Remote Commander and button-type battery out of children's reach. If the battery is accidentally swallowed, consult a doctor immediately.
- If the battery electrolytic liquid has leaked:
  - Consult your local authorized Sony service facility.
  - Wash off any liquid that may have contacted your skin.
  - If any liquid gets in your eyes, wash with plenty of water and consult a doctor.

When not using your camcorder for a long time

- Periodically turn it on and let it run such as by playing back or recording images for about 3 minutes.
- Use up the battery pack completely before storing it.

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder. This may cause a malfunction to your camcorder.

If moisture condensation has occurred

Leave your camcorder for about 1 hour without turning it on.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a humid place as follows:

- You bring your camcorder from a ski slope into a place warmed up by a heating device.
- You bring your camcorder from an air conditioned car or room into a hot place outside.
- You use your camcorder after a squall or a shower.
- You use your camcorder in a hot and humid place.

How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and seal it tightly. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

LCD screen

- Do not exert excessive pressure on the LCD screen, as it may cause damage.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

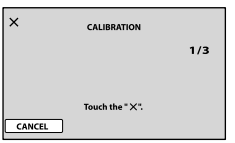
To clean the LCD screen

If fingerprints or dust make the LCD screen dirty, it is recommended you use a soft cloth to clean it. When you use the LCD Cleaning Kit (optional), do not apply the cleaning liquid directly to the LCD screen. Use cleaning paper moistened with the liquid.

On adjustment of the touch panel (CALIBRATION)

The buttons on the touch panel may not work correctly. If this happens, follow the procedure below. It is recommended that you connect your camcorder to the wall outlet (wall socket) using the supplied AC Adaptor during the operation.

① Turn on your camcorder, then press (HOME).
② Touch (SETTINGS) → [GENERAL SET] → [CALIBRATION].



③ Touch "×" displayed on the screen with the corner of the "Memory Stick PRO Duo" or the like 3 times. The position of "×" changes. Touch [CANCEL] to cancel.

If you did not press the right spot, try the calibration again.

Notes

- Do not use a sharp-pointed object for calibration. Doing so may damage the LCD screen.
- You cannot calibrate the LCD screen if it is rotated, or closed with the screen facing out.

On handling the casing

- If the casing is soiled, clean the camcorder body with a soft cloth lightly moistened with water, and then wipe the casing with a dry soft cloth.
- Avoid the following to avoid damage to the finish:
  - Using chemicals such as thinner, benzine, alcohol, chemical cloths, repellent, insecticide and sunscreen
  - Handling the camcorder with above substances on your hands
  - Leaving the casing in contact with rubber or vinyl objects for a long period of time

About care and storage of the lens

- Wipe the surface of the lens clean with a soft cloth in the following instances:
  - When there are fingerprints on the lens surface.
  - In hot or humid locations
  - When the lens is exposed to salty air such as at the seaside.
- Store in a well-ventilated location subject to little dirt or dust.
- To prevent mold, periodically clean the lens as described above. It is recommended that you operate your camcorder about once a month to keep it in optimum state for a long time.

On charging the pre-installed rechargeable battery

Your camcorder has a pre-installed rechargeable battery to retain the date, time, and other settings even when the POWER switch is set to OFF (CHG). The pre-installed rechargeable battery is always charged while your camcorder is connected to the wall outlet (wall socket) via the AC Adaptor or while the battery pack is attached. The rechargeable battery will be fully discharged in **about 3 months** if you do not use your camcorder at all. Use your camcorder after charging the pre-installed rechargeable battery.
However, even if the pre-installed rechargeable battery is not charged, the camcorder operation will not be affected as long as you are not recording the date.

Procedures

Connect your camcorder to a wall outlet (wall socket) using the supplied AC Adaptor, and leave it with the POWER switch set to OFF (CHG) for more than 24 hours.

On trademarks

- "Handycam" and HANDYCAM are registered trademarks of Sony Corporation.
- "Memory Stick," "Memory Stick Duo," "MEMORY STICK DUO," "Memory Stick PRO Duo," "MEMORY STICK PRO DUO," "Memory Stick PRO-HG Duo," "MEMORY STICK PRO-HG DUO" "Memory Stick Micro," "MagicGate," "MAGICGATE," "MagicGate Memory Stick" and "MagicGate Memory Stick Duo" are trademarks or registered trademarks of Sony Corporation.
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Notes on the License

ANY USE OF THIS PRODUCT OTHER THAN CONSUMER PERSONAL USE IN ANY MANNER THAT COMPLIES WITH THE MPEG-2 STANDARD FOR ENCODING VIDEO INFORMATION FOR PACKAGED MEDIA IS EXPRESSLY PROHIBITED WITHOUT A LICENSE UNDER APPLICABLE PATENTS IN THE MPEG-2 PATENT PORTFOLIO, WHICH LICENSE IS AVAILABLE FROM MPEG LA, L.L.C., 250 STEELE STREET, SUITE 300, DENVER, COLORADO 80206.

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Read "license1.pdf" in the "License" folder on the CD-ROM. You will find licenses (in English) of "C Library," "Expat," "zlib," and "libjpeg" software.

On GNU GPL/LGPL applied software

The software that is eligible for the following GNU General Public License (hereinafter referred to as "GPL") or GNU Lesser General Public License (hereinafter referred to as "LGPL") are included in the camcorder.

This informs you that you have a right to have access to, modify, and redistribute source code for these software programs under the conditions of the supplied GPL/LGPL.

Source code is provided on the web. Use the following URL to download it. When downloading the source code, select DCR-DVD810 as the model for your camcorder.

http://www.sony.net/products/Linux/

We would prefer you do not contact us about the contents of source code.

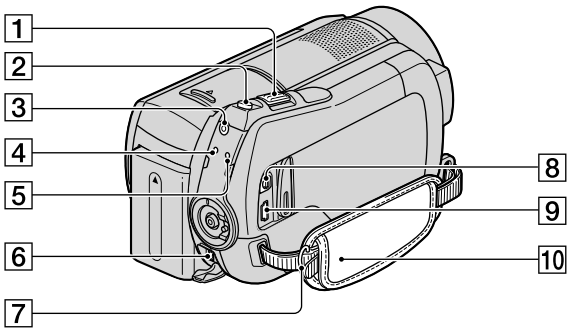
Read "license2.pdf" in the "License" folder on the CD-ROM. You will find licenses (in English) of "GPL," and "LGPL" software.

To view the PDF, Adobe Reader is needed. If it is not installed on your computer, you can download it from the Adobe Systems web page:

http://www.adobe.com/

Identifying parts and controls

The numbers in ( ) are reference pages.



1 Power zoom lever (27, 33)

2 PHOTO button (22, 26)

3 QUICK ON button (27)

4 ϟ/CHG (charge) lamp (13)

5 ACCESS lamp (Hard disk) (25)

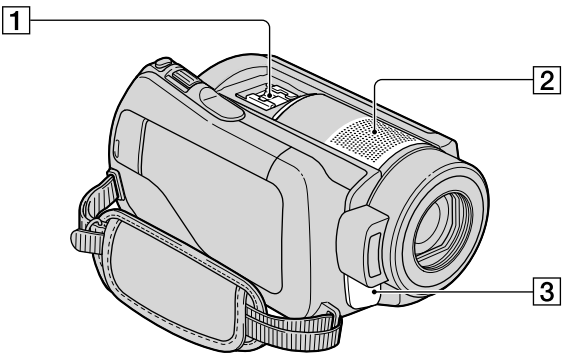
6 DC IN jack (13)

7 Hooks for a shoulder belt
Attach a shoulder belt (optional).

8 A/V Remote Connector (35, 47)

9 ψ (USB) jack (48, 50)

10 Grip belt (19)

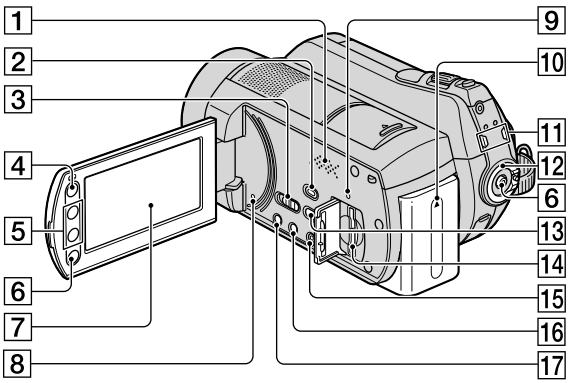


1 Active Interface Shoe (Active Interface Shoe)
The Active Interface Shoe supplies power to optional accessories such as a video light, a flash, or a microphone. The accessory can be turned on or off as you operate the POWER switch on your camcorder. Refer to the operating instructions supplied with your accessory for details.
The Active Interface Shoe has a safety device for fixing the installed accessory securely. To connect an accessory, press down and push it to the end, and then tighten the screw. To remove an accessory, loosen the screw, and then press down and pull out the accessory.

- When you are recording movies with an external flash (optional) connected to the accessory shoe, turn off the power of the external flash to prevent charging noise being recorded.
- You cannot use an external flash (optional) and the built-in flash at the same time.
- When an external microphone (optional) is connected, it takes precedence over the built-in microphone.

2 Built-in microphone (27)
An Active Interface Shoe compatible microphone (optional) will take precedence when connected.

3 Remote sensor/Infrared port
Point the Remote Commander (p. 103) towards the remote sensor to operate your camcorder.



1 Speaker
For how to adjust the volume, see page 31.

2 ▶ (VIEW IMAGES) button (23, 30)

3 NIGHTSHOT switch (28)

4 ⌂ (HOME) button (10, 56)

5 Zoom buttons (27, 33)

6 START/STOP button (22, 25)

7 LCD screen/touch panel (19)

8 RESET button
Initializes all the settings, including the setting of the date and time.

9 ACCESS lamp (“Memory Stick PRO Duo”) (21)

10 Battery pack (13)

11 (Movie)/ (Still) mode lamp (17)

12 POWER switch (17)

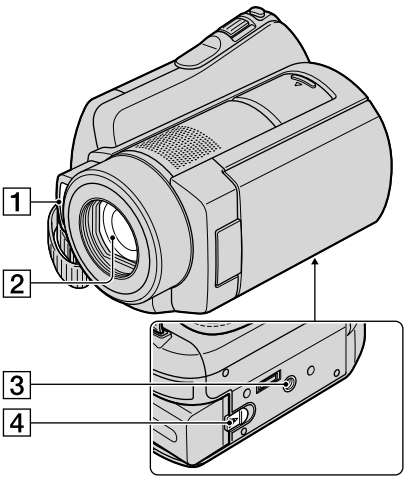
13 (DISC BURN) button (37)

14 Memory Stick Duo slot (21)

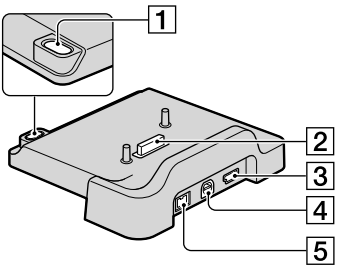
15 EASY button (22)

16 DISP/BATT INFO button (14, 19)

17 (back light) button (28)



Handycam Station:



1 Flash

2 Lens (Carl Zeiss Lens) (3)

3 Tripod receptacle
Attach the tripod (optional: the length of the screw must be less than 5.5 mm (7/32 in.)) to the tripod receptacle using a tripod screw.

4 BATT (battery) release lever (14)

1 (DISC BURN) button (37)

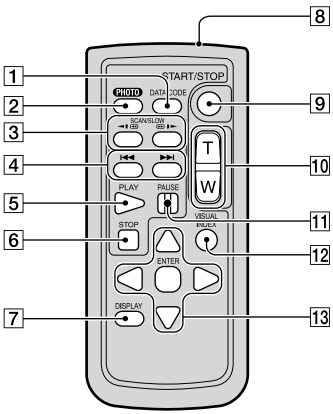
2 Interface connector

3 (USB) jack (50)

4 A/V OUT jack (35, 47)

5 DC IN jack (13)

Remote Commander



1 DATA CODE button (64)
Displays the date and time or camera setting data of the recorded images when you press this during playback.

2 PHOTO button (22, 25)
The on-screen image when you press this button will be recorded as a still image.

3 SCAN/SLOW buttons (23, 31)

4 ⏮ ⏭ (Previous/Next) buttons (24, 31)

5 PLAY button (23, 31)

6 STOP button (23, 31)

7 DISPLAY button (14)

8 Transmitter

9 START/STOP button (22, 25)

10 Power zoom buttons (27, 33)

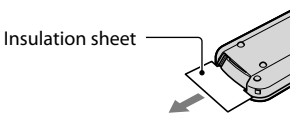
11 PAUSE button (23, 31)

12 VISUAL INDEX button (23, 30)
Displays the [VISUAL INDEX] screen when you press this during playback.

13 ◀ / ▶ / ▲ / ▼ / ENTER buttons
When you press any button on the [VISUAL INDEX] screen or Playlist, the orange frame appears on the LCD screen. Select a desired button or an item with ◀ / ▶ / ▲ / ▼, then press ENTER to enter.

Notes

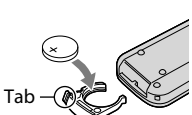
- Remove the insulation sheet before using the Remote Commander.



- Point the Remote Commander towards the remote sensor to operate your camcorder (p. 100).
- When no commands have been sent from the Remote Commander in a certain period, the orange frame disappears. When you press any of ◀ / ▶ / ▲ / ▼, or ENTER again, the frame appears at the position where it was displayed last.
- You cannot select some buttons on the LCD screen using ◀ / ▶ / ▲ / ▼.

To change the battery of the Remote Commander

① While pressing on the tab, inset your fingernail into the slit to pull out the battery case.
② Place a new battery with the + side facing up.
③ Insert the battery case back into the Remote Commander until it clicks.



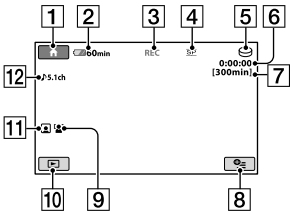
WARNING

Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

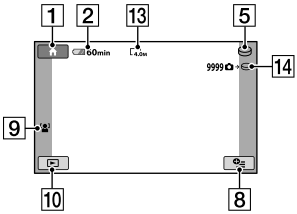
- When the lithium battery becomes weak, the operating distance of the Remote Commander may shorten, or the Remote Commander may not function properly. In this case, replace the battery with a Sony CR2025 lithium battery. Use of another battery may present a risk of fire or explosion.

Indicators displayed during recording/playback

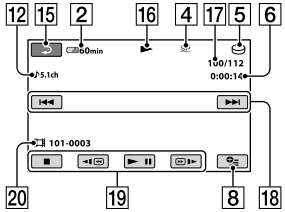
Recording movies



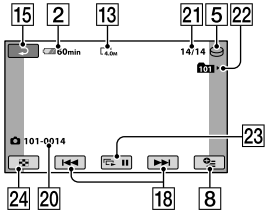
Recording still images



Viewing movies



Viewing still images



1 HOME button (9, 56)

2 Remaining battery (approx.) (14)

3 Recording status ([STBY] (standby) or [REC] (recording))

4 Recording mode (HQ/SP/LP) (58)

5 The recording/playback media (20)

6 Counter (hour/minute/second)

7 Remaining recording time

8 OPTION button (71)

9 FACE DETECTION (61)

10 VIEW IMAGES button (23, 30)

11 Face Index set (61)

12 5.1ch surround recording

13 Image size (62)

14 Approximate number of recordable still images and media/During still image recording

15 Return button

16 Playback mode

17 Currently playing movie number/ Number of total recorded movies

18 Previous/Next button (23, 30)

19 Video operation buttons (23, 30)

20 Data file name

21 Currently playing still image number/ Number of total recorded still images

22 Playback folder
Displays only when the recording media of still images is a "Memory Stick PRO Duo."

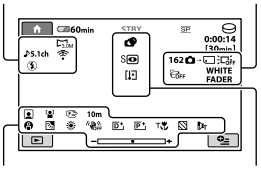
23 Slide show button (34)

24 VISUAL INDEX button (23, 30)

Indicators when you made changes

Following indicators appear during recording/playback to indicate the settings of your camcorder.

Upper left Upper right



Bottom Center

Upper left

Indicator	Meaning
♪5.1ch ♪2ch	AUDIO MODE (58)
	Self-timer recording (77)
	Flash/REDEYE REDUC (63)
	MICREF LEVEL low (77)
4:3	WIDE SELECT (59)
	BLT-IN ZOOM MIC (77)

Upper right

Indicator	Meaning
WHITE FADER BLACK FADER	Fader (76)
OFF	LCD backlight off (19)
OFF	Drop sensor off (69)
	Drop sensor activated (69)
	The media selected for still images (20)

Center

Indicator	Meaning
4.0M 3.0M 1.9M VGA	IMAGE SIZE (62)
	Slide show set (34)
	NightShot (28)
S	Super NightShot (76)
	Color Slow Shutter (76)
	PictBridge connecting (50)
	Warning (86)

Bottom

Indicator	Meaning
P	Picture effect (77)
D	Digital effect (77)
F	Manual focus (73)
	SCENE SELECTION (74)
	Backlight (25)
	White balance (75)
OFF	SteadyShot off (59)
	EXPOSURE (74)/ SPOT METER (74)
T	TELE MACRO (73)
	ZEBRA (59)
	Face Index set (32)
	FACE DETECTION (61)
	CONVERSION LENS (61)

Tips

- Indicators and their positions are approximate and differ from what you actually see.

Data code during recording

The recording date and time is recorded automatically on the media.They are not displayed while recording. However, you can check them as [DATA CODE] during playback (p. 64).

Glossary

■ 5.1ch surround sound

A system that plays back sound on 6 speakers, 3 at the front (left, right and center) and 2 at the rear (right and left) with an additional low-pass subwoofer counted as a 0.1 channel for frequencies of 120 Hz or lower.

■ Dolby Digital

An audio encoding (compression) system developed by Dolby Laboratories Inc.

■ Dolby Digital 5.1 Creator

Sound compression technology developed by Dolby Laboratories Inc. which compresses audio efficiently while preserving high sound quality. Sounds are compressed effectively with high quality sound, and it enables producing 5.1ch surround sound.

■ Fragmentation

The condition of a media in which files are divided into pieces scattered around the media. You may not save your images correctly. You can solve the condition by performing [MEDIA FORMAT] (p. 53).

■ JPEG

JPEG stands for Joint Photographic Experts Group, a still image data compression (data capacity reduction) standard. Your camcorder records still images in JPEG format.

■ MPEG

MPEG stands for Moving Picture Experts Group, the group of standards for the coding (image compression) of video (movie) and audio. There are MPEG1 and MPEG2 formats. Your camcorder records movies with SD (standard definition) image quality in MPEG2 format.

■ Thumbnail

Reduced-size images which enable you to view many images at the same time. [VISUAL INDEX], [INDEX] and [INDEX] use a thumbnail display system.

■ VBR

VBR stands for Variable Bit Rate, the recording format for automatically controlling the bit rate (the volume of recording data in a given time segment) according to the scene being recorded. For fast-moving video, a lot of hard disk space is used to produce a clear image, so the recording time to the media shortens.

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Additional information on this product and answers to frequently asked questions can be found at our Customer Support Website.

http://www.sony.net/